



SwitchX 36-Port QSFP InfiniBand- Ethernet Gateway System Hardware User Manual

P/N: MSX6036G-2SFS, MSX6036G-2SRS

Rev 1.0

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Revision History

Table 1 - Revision History Table

Date	Revision	Description
August 2013	1.0	Initial Release

About this Manual

This manual describes the installation and basic use of the Mellanox gateway which is based on the SwitchX® -2 gateway device.

Intended Audience

This manual is intended for users and system administrators responsible for installing, running, and managing switch platforms.

Related Documentation

Additional Documentation available from Mellanox:

Table 2 - Reference Documents and Web Sites

Document Name	Description
<i>SwitchX®-2 Switch Product Hardware Release Notes</i>	For possible hardware issues see the switch support product page. This document can be found on the support web page for this product. This requires a customer support login. Look up the relevant SwitchX®-based switch system/series release note file.
<i>Mellanox MLNX-OS® Software User Manual</i>	This document contains information regarding configuring and managing Mellanox Technologies Switch Platforms.
<i>MLNX-OS® Software Command Reference Guide</i>	Command Reference Guide for <i>MLNX-OS®</i> listing all of the commands available through <i>MLNX-OS®</i> with explanations and examples.

All of these documents can be found on the Mellanox Website at www.mellanox.com. They are available either through the product pages www.mellanox.com ⇒ Products ⇒ Select your product or through the support page with a login and password.

Conventions

Throughout this manual, the name SX6036G and the term gateway are used to describe the gateway unless explicitly indicated otherwise.

The following icons are used throughout this document to indicate information that is important to the user.



This icon makes recommendations to the user.



This icon indicates information that is helpful to the user.



This icon indicates a situation that can potentially cause damage to hardware or software.



BEWARE! This icon indicates a situation that can potentially cause personal injury or damage to hardware or software.

Abbreviations

FDR — Fourteen Data Rate – Used to indicate a 4X port running at 56 Gb/s.

FRU — Field Replaceable Unit

Mellanox Part Numbering Legend

Place	Field	Decoder
M		Mellanox Technologies
SX	System Type	SwitchX® switch Family
P	Data Transfer Protocol	
R	Size of box	0 = 1U 1 = 1.5U 2 = 2U
C	Data Rate	G = Gateway
-	Separator	
P	# Power Supplies	1=1, 2=2....
M	Depth of the Unit	S = standard depth, B = short depth
Y	Air Flow direction	R= Connector side to Power side airflow F= Power Side side to Connector side airflow
R	Chip Generation	R – SwitchX S – SwitchX-2

1 Overview

Mellanox's InfiniBand to Ethernet gateway functionality built with Mellanox switches provides the most cost-effective, high-performance solution for data center unified connectivity solutions. Mellanox's gateways enable data centers to operate at up to 56Gb/s network speeds while seamlessly connecting to 1, 10 and 40 Gigabit Ethernet networks. Existing LAN infrastructures and management practices can be preserved, easing deployment and providing significant return-on-investment.

With its high bandwidth, low-latency and reduced overhead, InfiniBand is the ideal choice for speeding up application performance while simultaneously consolidating network and I/O infrastructure. Combining InfiniBand and Ethernet into a single solution provides the ideal rack backbone for next generation data centers.

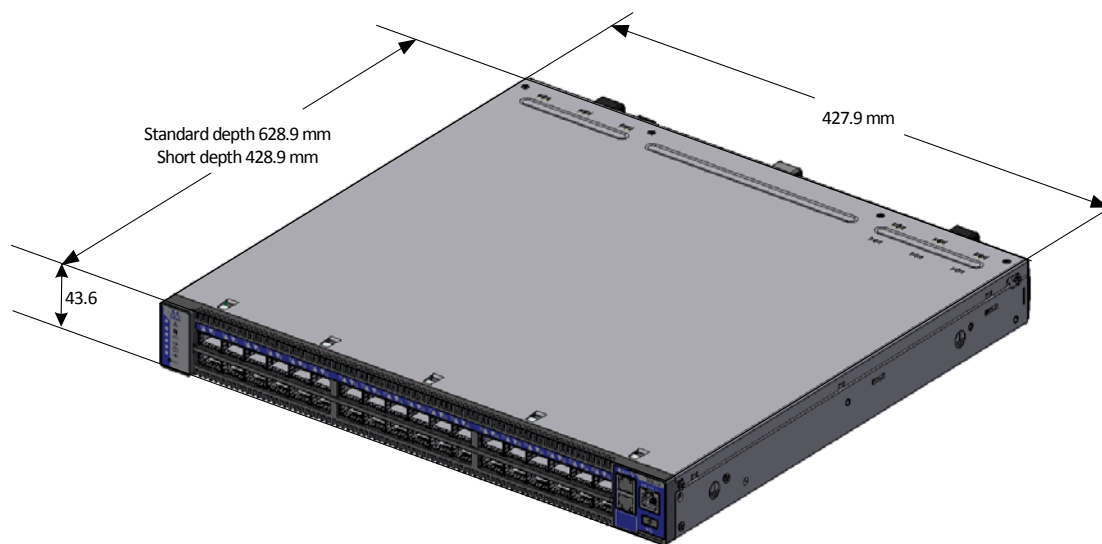
Built with Mellanox's SwitchX®-based switches, the InfiniBand to Ethernet gateway software license, or system, provides full port flexibility to choose between 56Gb/s InfiniBand to either 10, 40 and 56Gb/s Ethernet with low 400ns latency.

Together with Mellanox's ConnectX®-3 VPI interconnect adapters, IT managers can rely on Mellanox as the most efficient end-to-end interconnect solution provider for their unified and flexible InfiniBand and Ethernet data centers.

The SX6036G is a high-performance, low-latency 56Gb/s FDR InfiniBand to 40Gb/s Ethernet gateway built with Mellanox's 6th generation SwitchX®-2 VPI switch device.

Installation, hot-swapping components and hardware maintenance is covered in “Basic Operation” on page 16.

Figure 1: Connector Side View of the Gateway



1.1 Features

The gateway includes the following features:

Table 3 - General System Features

	Feature	Description
Hardware features	Network Interfaces	<ul style="list-style-type: none"> • 36 QSPF+ interfaces • Interface types –InfiniBand and Ethernet • InfiniBand speed: FDR (56Gb/s); FDR10/QDR (40Gb/s); DDR (20Gb/s); SDR (10Gb/s) • Ethernet speed: 10/40/56 GbE
	FRUs	<ul style="list-style-type: none"> • Redundant power supplies • Replaceable fan module
	Compliance	<ul style="list-style-type: none"> • Compliant with IBTA 1.2.1 and 1.3 • RoHS 6
	Advanced Features	<ul style="list-style-type: none"> • Congestion control** • Adaptive routing** • Port mirroring** • Forward Error Correction -(FEC) • Link Layer Retransmission -(LLR) • Multiple SWIDs **

** This feature will be available to customers in the near future.

Table 4 - Management Software

	Feature	Description
Management Software (MLNX-OS®)	Software Management	<ul style="list-style-type: none"> Dual software image Software and firmware updates
	File management	<ul style="list-style-type: none"> FTP TFTP SCP
	Logging	<ul style="list-style-type: none"> Event history log SysLog support
	Management Interface	<ul style="list-style-type: none"> DHCP/Zeroconf IPv6
	Chassis Management	<ul style="list-style-type: none"> Monitoring environmental controls Power management Auto temperature control High availability
	Network Management Interfaces	<ul style="list-style-type: none"> SNMP v1,v2c,v3 REST interfaces (XML Gateway)
	Security	<ul style="list-style-type: none"> SSH Telnet RADIUS TACACS+
	Date and Time	<ul style="list-style-type: none"> NTP
	Cables & Transceivers	<ul style="list-style-type: none"> Transceiver info
	Virtual Port Interconnect® (VPI)	<ul style="list-style-type: none"> Ethernet InfiniBand

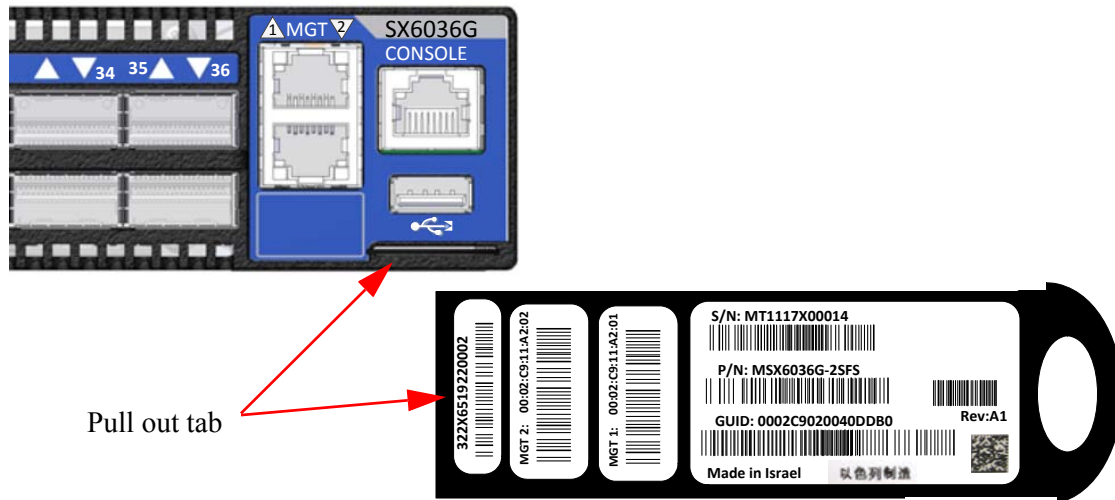
Table 5 - Ethernet Features

Feature	Description
General	<ul style="list-style-type: none"> Jumbo Frames (9K) ACL - 24K rules (permit/deny) Breakout cables
Ethernet support	<ul style="list-style-type: none"> 48K Unicast MAC addresses VLAN (802.1Q) - 4K LAG/LACP (802.3ad), 16 links per LAG (36 LAGs) Rapid Spanning Tree (802.1w) Flow control (802.3x) IGMP snooping v1,2 LLDP ETS (802.1Qaz) PFC (802.1Qbb) Port mirroring

1.2 Serial Number and Product Version Information

The serial number, GUID and the MAC for the gateway are found on the pull out tab on the right side of the Connector side panel below the CONSOLE connector. One MAC is for the mgmt0 management interface (the top Ethernet port). The second interface mgmt1 has the next consecutive MAC.

Figure 2: Pull Out Tab



1.3 Ethernet Ports

The gateway contains 8 ports of 40GbE. Each port can be connected with QSFP cables and connectors for 40Gb/s speed, or 10Gb/s speed when connecting through QSA Mellanox adaptors. Specific ports can be manually configured through the CLI management interface.



40 GbE and 56 GbE are only guaranteed to work with approved cables and modules.

Each QSFP port is capable of up to 40GbE, upgradable to 56 GbE with a license, as well as 10GbE with a QSA, QSFP to SFP+ adapter or QSFP to SFP+ cables.



56GbE is operational on Mellanox 56Gb/s VPI cables only.

1.4 FDR Transmission Rate

Mellanox systems support FDR (fourteen data rate), an InfiniBand data rate, where each lane of a 4X port runs a bit rate of 14.0625 Gb/s with a 64b/66b encoding, resulting in an effective bandwidth of 56.25 Gb/s. The FDR physical layer is an IBTA specified physical layer using advanced block types, deskew mechanism and framing rules for supporting higher speeds and increased reliability.

The gateways also supports FDR10, a non-standard InfiniBand data rate, where each lane of a 4X port runs a bit rate of 10.3125 Gb/s with a 64b/66b encoding, resulting in an effective bandwidth of 40 Gb/s.

FDR10 supports 20% more bandwidth over QDR using the same QSFP cables/connectors.

Both FDR and FDR10 support Forward Error Correction (FEC), as described in IEEE 802.3ap chapter 74.



FDR and FDR10 are only guaranteed to work with approved Mellanox Cables.

2 Basic Operation

2.1 Gateway Platform Hardware Overview

Figure 3 shows the power side panel view of the gateway. The figure shows the hot-swap power supply locations and the hot-swap fan module, and an I2C banana connector.

The figure below shows the connector side panel views of the gateway. The figure shows port configurations for the systems.

- 2 – Ethernet RJ-45 connectors for management
- 1 – RJ-45 connector for connecting to a host PC
- 1 – USB connector.

All gateways have various status LEDs for on site status information.

Figure 3: Gateway System Power and Connector Side Panels



Power Side Panel



All connectivity except for power cords is via the connector side panel. All connectors can support active optical cables.

2.2 Status LEDs

The System Status LEDs are located to the left of the connectors on the connector side panel, and on the power side at the far right.

2.2.1 System Status LEDs

Figure 4: System Status LEDs

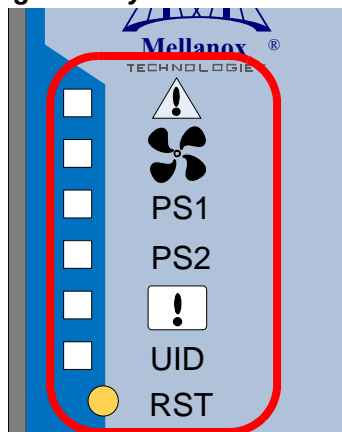


Table 6 - System Status LEDs

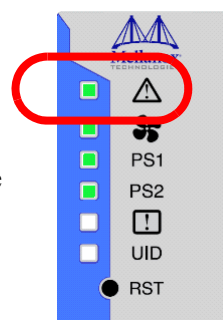
Symbol	Name	Description	Normal Conditions
	Gateway Status	Shows the health of the gateway	Solid green after 5 minutes
	Fan Status LED	Shows the health of the fans	Green
PS1	Power supply #1	Shows the health of the right side power supply unit	Green
PS2	Power supply #2	Shows the health of the left side power supply unit	Depends on gateway
	Bad Port LED	lights up when a symbol error is detected	Off
UID	Unit Identifier LED	Lights up on command through the CLI	Off

Figure 5: Gateway Status LEDs Front and Back



Power side
status LED

Both of these LEDs show the
switch status.



Connector side
status LED

Both of these LEDs give identical information.

The system status LEDs should display as follows:

- when the gateway is plugged in, within five minutes the gateway status LED should light up green
- the FAN LED should light up green. If the FAN LED shows red, troubleshoot the fan module. See page 57.
- the PS1 LED for the plugged in PS unit should light up green
- the PS2 LED for the second PS unit should light up green only if a second PS unit is installed in the gateway for redundancy and it is connected to a power source
 - if two PS units are installed and only one PS unit is connected to a power supply the PS2 LED will be red
 - if only one PS unit is installed in the gateway, the PS2 LED will be off



As long as there is power to the gateway (one PS unit is connected), and the gateway is booted up and running, the gateway status LED should be green.



If the status LED shows red after five minutes, unplug the gateway and call your Mellanox representative for assistance.



If the gateway shuts down due to over temperature, unplug the gateway, wait 5 minutes and replug in the gateway. For more information See page 57.

If the PS LEDs are not green, this indicates a problem with the power supplies. The gateway is operational only if at least one of the PS LEDs is green.

2.2.2 Gateway Status LED

Figure 6: Gateway Status LED

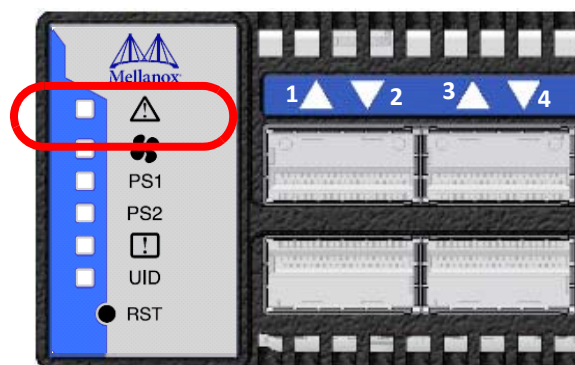


Table 7 - Gateway Status LED Assignments

LED Configuration	STATUS/ System Health LED
Solid Green	OK – The system is up and running.
Flashing Green	The system is booting up. This assignment is valid on managed systems only.
Solid Yellow	To be implemented in a future SW release.
Solid Red	Major Error – Possible damage can result to the gateway. Turn off immediately. e.g. bad firmware, can't boot, overheated. If the system is booting up, it can take up to 5 minutes for the status led to change to green.
Off	Off – The system has no power.

2.2.3 Fan Status LED



All fans must be operating while the power supply is plugged in.



If the gateway shuts down due to over temperature, unplug the gateway, wait 5 minutes and replug in the gateway. For more information See page 57.

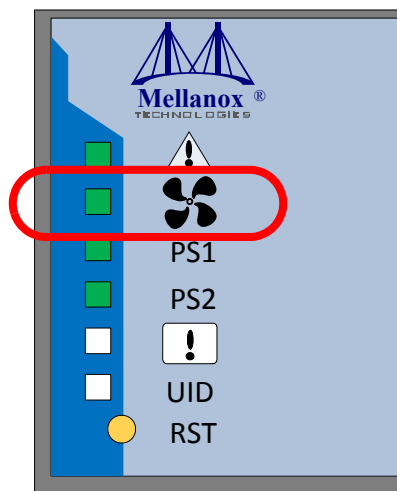
Figure 7: Fan Status LED Connector Side

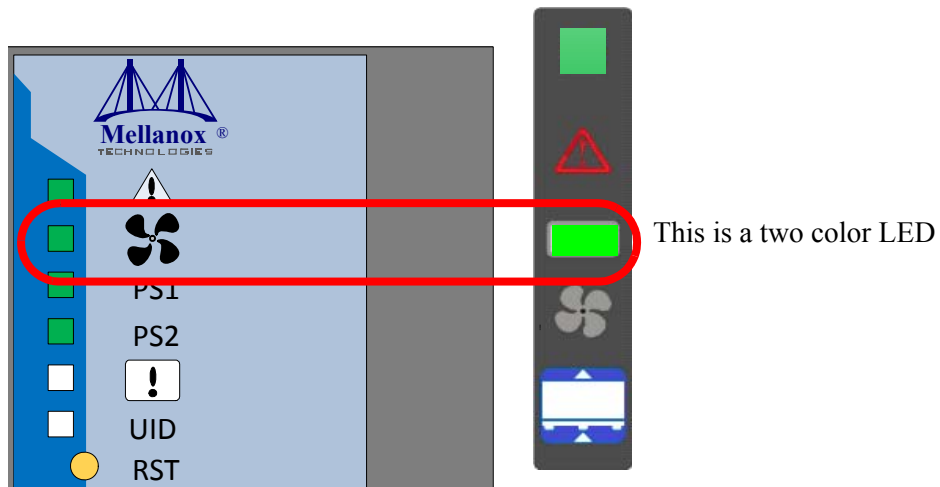
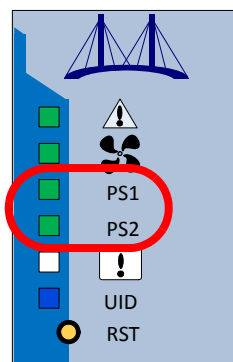
Figure 8: Fan Status LED Power Side

Table 8 shows the fan status LED assignment.

Table 8 - Fan Status LED Assignments

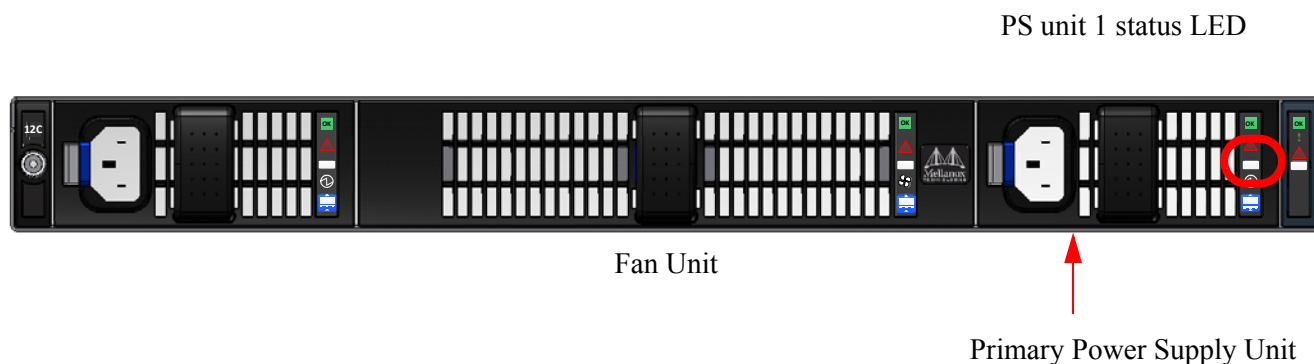
LED Configuration	FAN LED
Solid Green	OK – All fans are up and running.
Solid Red	Error – One or more fans is not operating properly. The system should be powered down and troubleshoot the fan module.
Off	Off – The fan unit is not receiving any power. Check that the fan unit is properly and completely inserted.

2.2.4 Power Supply Status LEDs

Figure 9: Power Status LED Connector Side

This gateway comes with two power supply units for redundancy.

The gateway is available with one factory installed Power Supply Unit. A second Power Supply Unit can be added to support hot-swap ability and to add redundancy. See “Accessory and Replacement Parts” on page 66 for ordering part numbers.

Figure 10: Power Side Panel

The primary power supply unit (PS1) is located on the right side of the power side panel, with PS2 on the left side. Each PS unit has a single 2 color LED on the right side of the PS unit, that indicates the internal status of the unit.

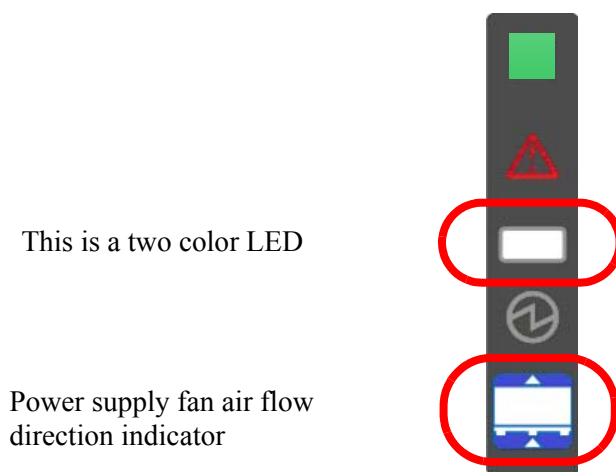
Figure 11: PS Unit Status LEDs

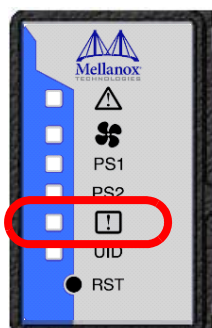
Table 9 shows the power supply unit status LED assignment.

Table 9 - PS Unit Status LED Assignments

LED Color	Status
Solid Green	OK – The Power supply is delivering the correct voltage – 12VDC.
Solid Red	Error – The PS unit is not operational.
Off	Off – There is no power to the system (neither PS unit is receiving power). If one PS unit is showing green and the second PS unit is unplugged it will show a red indication.

2.2.5 Bad Port LED

Figure 12: Bad Port LED



The Bad Port indicator is located on the left side of the connector side panel of the unit. Table 10 shows the bad port status LED assignment.

Table 10 - Bad Port LED Assignments

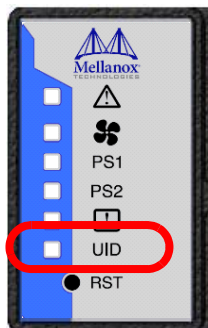
LED Configuration	Description
Off	OK – No symbol errors have been received in last few seconds.
Flashing Orange	Error – One or possibly more ports have just received a symbol error Possible causes are: <ul style="list-style-type: none"> • Bad cable • Bad connection • Bad connector

This LED lights up when one or more ports is receiving a symbol error. The LED immediately goes off until the next symbol error is received.

2.2.6 UID LED Gateway Identifier¹

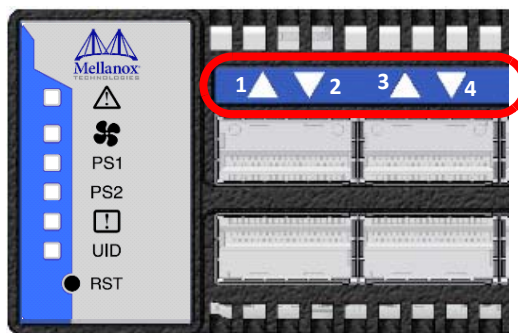
The UID LED is a debug feature that lights a blue LED on the gateway connector side panel for ease in finding a particular gateway within a cluster.

1. This feature will be available in a coming software release.

Figure 13: Identifier LED

2.3 Port Connector LEDs

Above the downlink ports are two LEDs one for the upper port ▲ and one for the lower port ▼. Table 11 shows the port status according to the LED indication for Ethernet protocol. Table 12 shows the port status according to the LED indication for InfiniBand protocol.

Figure 14: Port LEDs**Table 11 - Port Connector Physical and Logical Link Assignments for Ethernet Mode**

LED Configuration	LED Description
Off	Physical link is down / Default.
Solid Green	Physical link is up with no traffic.
Flashing Green	Physical link is up with traffic.
Flashing Orange	Physical errors.

Table 12 - Connector Physical and Logical Link Assignments for IB Mode

LED Status	LED Description
Off	No power to the port.
Solid Green	Logical link is up.
Flashing Green	Data activity flashing speed is proportional to data transfer speed.
Solid Orange	Physical link is up.
Flashing Orange	A problem with the physical link.

In IB mode, the LED indicator, corresponding to each data port, will light orange when the physical connection is established (that is, when the unit is powered on and a cable is plugged into the port with the other end of the connector plugged into a functioning port). When a logical connection is made the LED will change to green. When data is being transferred the light will blink green.

2.4 Air Flow

These gateways can come with two air flow patterns. The two patterns are:

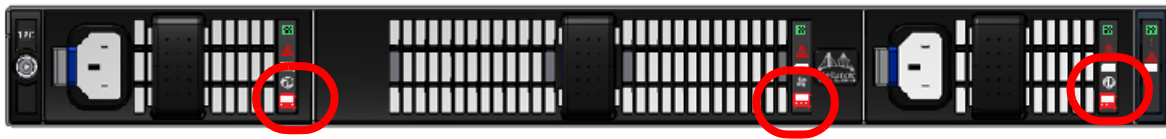
- Connector side inlet to power side outlet
- Power side inlet to connector side outlet

The air flow is specified in the product model number. See “Mellanox Part Numbering Legend” on page 10

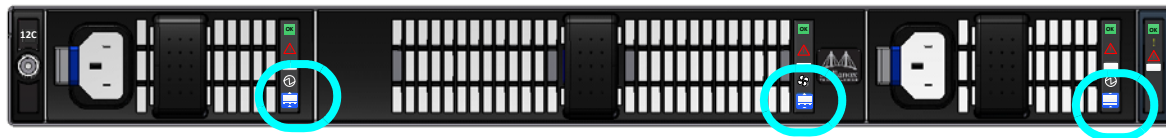
On the power side panel the PS unit and fan modules air flow direction can be seen. All components need to have the same air flow. A mismatch in the air flow will affect the heat dissipation.



All PS units must have the same air flow as the fan module.

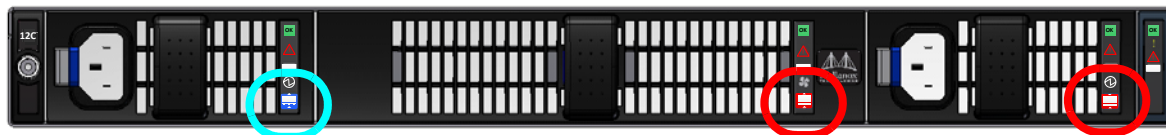
Figure 15: Component Air Flow

These air flow labels must be the same.
Red is connector side inlet to power side outlet



Blue is power side inlet to connector side outlet

Figure 16 shows a mismatch in component airflow.

Figure 16: Component Airflow Mismatch (Wrong)

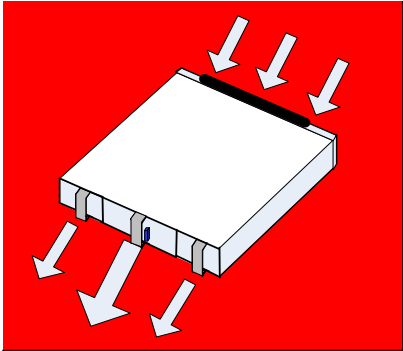

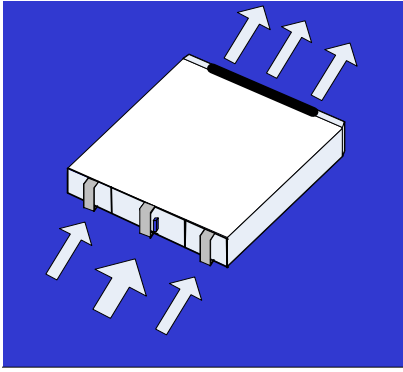
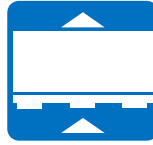
These air flow labels must be the same.
Any mismatch of these labels will affect the gateway temperature.

Table 13 shows the icons that indicate airflow using arrows and colors.



All components need the same colored airflow icons.

Table 13 - Air Flow Direction

Direction	Label	OPN Designation	Description
		R	Connector side inlet to power side outlet
		F	Power side inlet to connector side outlet

2.5 QSFP Cable Power Budget Classification

All SwitchX®-2 QSFP gateways are designed for active optical cables with a max power per module of 2 W. Typical power per port is 1.5 W

2.6 Interfaces

Management and Firmware Updating Interfaces

The following interfaces connect to the gateway:


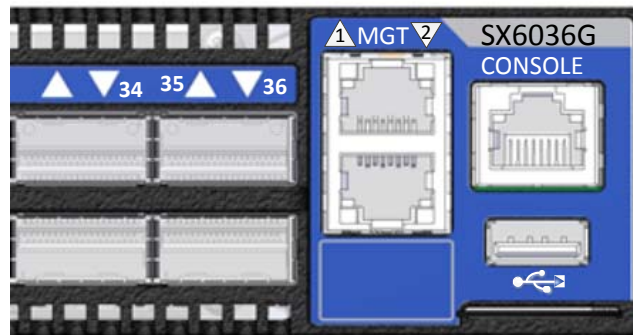
- 2 – 100 M/1 Gb Ethernet connectors labeled “MGT”
- 1 – USB port that is labeled 
This interface can be used to update software or firmware.
- 1 – connector that is labeled “CONSOLE”
Use this connector to connect to the host PC.
- 1 – reset button
- 1 – I2C banana connector on the power supply side is for FAE use only.

Figure 17: Management Interfaces

2.6.1 RJ-45 Connector “CONSOLE”

The port labeled “CONSOLE” is for a local host connection to the management module. This is used the first time the gateway is connected. A harness is included in the package to connect to a DB9 connection on a host PC. Connecting to a local host PC and following the instructions in the Installation Guide, “Configuring the Gateway for the First Time”, must be done before any remote management is available. For the Socket pinout see “RJ-45 CONSOLE and I2C Interface” on page 65

RJ-45 Ethernet Connector “MGT” The 2 Ethernet connections labeled “MGT” provides access for remote management. The gateway can be connected to any Ethernet port. The top Ethernet port on the connector side of the gateway is mgmt0.



Each Ethernet connector gets connected to Ethernet switches. These switches must be configured to 100M/1G auto-negotiation.



Use only FCC compliant Ethernet cables.

2.6.2 USB Connector

There is a single USB connector. This connector can be used to install software and or firmware upgrades using a memory device that has a USB connector. This connector is USB 2.0 compliant.



USB 1.0 is not supported.



Do NOT use excessive force when inserting or extracting the USB from the connector.

2.6.3 I2C Connector

There is an I2C connector on the far left of the power side of the gateway. **This interface is for Debug and Troubleshooting only.** This connector can be used to install firmware upgrades, should the firmware image be damaged and cannot be upgraded through a host PC or remotely. This interface is for support personnel and advanced users only.

2.6.4 Reset Button

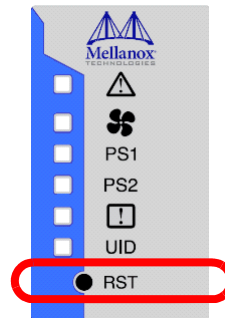
On the connector side panel under the system LEDs is a reset button. This reset button requires a tool to be pressed.



DO NOT use a sharp pointed object such as needle or push pin for pressing the Reset button. Sharp objects can cause damage, use a flat object to push the reset button.

Figure 18: Reset Button

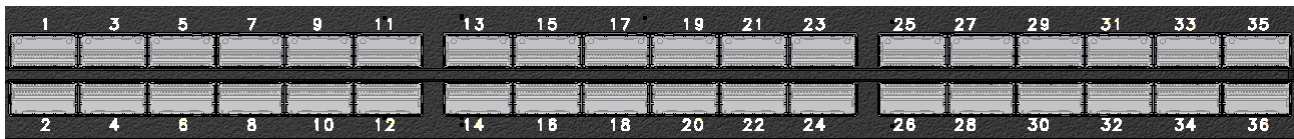
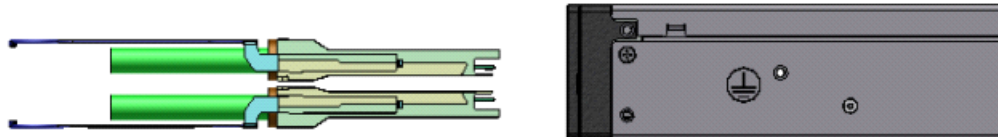
Press the reset button to reset the main and management CPUs and to delete the existing password.



This button resets both the CPU of the gateway device and the CPU of the management module. It thereby resets all of the ports by bringing them down and powering them up when the button is pushed. A quick push of this button performs this reset. When the button is held down for 15 seconds the gateway is reset and the password is deleted. You will then be able to enter without a password and make a new password for the user “*admin*”.

2.6.5 Port Connector Interfaces

The connector side of the gateway has 36 QSFP ports. These are placed in two rows, 18 ports to a row. The ports are labelled as shown in Figure 19. The bottom row ports are flipped from the top row. See Figure 20 for bottom row - top row port orientation. See page 51 for more information regarding breakout (fanout) cables.

Figure 19: Port Numbering**Figure 20: Top and Bottom QSFP Port Orientation**

2.6.6 Port Protocol Configuration

Ports 1 to 8 are pre-configured to Ethernet. Ports 9 to 36 are pre-configured to InfiniBand. Ports 1 to 8 can be configured to support 13 10GbE SFP+ data streams. See Section 4.2 on page 51 for the split-able ports. See the Mellanox MLNX-OS user manual for instructions on port re-configuration.

A future software release will support each port to be manually configured to be either Infiniband or Ethernet. Specific ports can be split from 40 GbE to four times 10GbE. All ports can then be configured to optimize your network.

2.6.7 Port Speed Configuration

These QSFP+ ports can be manually configured to run at speeds ranging from 1GbE to 56 GbE. To change the port speed configuration use the GUI, or use the CLI and go to the interface configuration mode, then use the command “speed”. See the Mellanox MLNX-OS user manual for instructions on port speed re-configuration.

3 Installation

Installation and initialization of the gateway platform are straightforward processes, requiring attention to the normal mechanical, power, and thermal precautions for rack-mounted equipment.

The gateway platform requires initial configuration to operate as an InfiniBand device. All gateways come with an internal PPC based management board. This board allows for internally managing the gateway through a host PC or remotely through the Ethernet.

The gateway platform can be rack mounted and is designed for installation in a standard 19" rack. The power side of the gateway includes 2 hot-swap power supply modules for redundancy, and a hot-swap fan tray. There are two possible air flow directions. Be sure that the gateway air flow direction is compatible with your system, rack, and PS units. The connector side of the gateway has the QSFP ports, system LEDs, and management connection ports.

The gateway platform contains auto-sensing 100 - 240 VAC connections for all possible PS units.

The installer should use a rack capable of supporting the mechanical and environmental characteristics of a fully populated platform.



The rack mounting holes conform to the EIA-310 standard for 19-inch racks. Take precautions to guarantee proper ventilation in order to maintain good airflow at ambient temperature. Cable routing in particular should not impede the air flow through the gateway

3.1 Installation Safety Warnings

For Safety Warnings in French see “Avertissements de sécurité pour l'installation (French)” on page 68, for German “Installation – Sicherheitshinweise(German)” on page 73, for Spanish see “Advertencias de seguridad de instalación(Spanish)” on page 77 for Russian see “Предупреждения по технике безопасности при установке(Russian)” on page 82, for Romanian see “Avertismente privind siguranța la instalare (Romanian)” on page 87, and for Chinese see page 92.

1. Installation Instructions



Read all installation instructions before connecting the equipment to the power source.

2. Installation in Restricted Access Location



This unit is intended for installation in a Restricted Access Location.

3. Over-temperature



This equipment should not be operated in an area with an ambient temperature exceeding the maximum recommended: 45°C (113°F). Moreover, to guarantee proper air flow, allow at least 8cm (3 inches) of clearance around the ventilation openings.

4. Stacking the Chassis



The chassis should not be stacked on any other equipment. If the chassis falls, it can cause bodily injury and equipment damage.

5. Double Pole/Neutral Fusing



This system has double pole/neutral fusing. Remove all power cords before opening the cover of this product or touching any internal parts.

6. Multiple Power Inlets



Risk of electric shock and energy hazard.

The PSUs are all independent.

Disconnect all power supplies to ensure a powered down state inside of the gateway platform.

7. During Lightning - Electrical Hazard



During periods of lightning activity, do not work on the equipment or connect or disconnect cables.

8. Copper Cable Connecting/Disconnecting



Copper cables are heavy and not flexible, as such they should be carefully attached to or detached from the connectors. Refer to the cable manufacturer for special warnings/instructions.

9. Rack Mounting and Servicing



When this product is mounted or serviced in a rack, special precautions must be taken to ensure that the system remains stable. In general you should fill the rack with equipment starting from the bottom to the top.

10. Equipment Installation



This equipment should be installed, replaced, and/or serviced only by trained and qualified personnel.

11. Equipment Disposal



Disposal of this equipment should be in accordance to all national laws and regulations.

12. Local and National Electrical Codes



This equipment should be installed in compliance with local and national electrical codes.

13. Installation Codes



This device must be installed according to the latest version of the country national electrical codes. For North America, equipment must be installed in accordance to the applicable requirements in the US National Electrical Code and the Canadian Electrical Code.

14. Battery Replacement



Warning: Replace only with UL Recognized battery, certified for maximum abnormal charging current not less than 4mA

There is a risk of explosion should the battery be replaced with a battery of an incorrect type.

Dispose of used batteries according to the instructions.

15. UL Listed and CSA Certified Power Supply Cord



For North American power connection, select a power supply cord that is UL Listed and CSA Certified, 3 - conductor, [16 AWG], terminated with a molded plug rated at 125 V, [13 A], with a minimum length of 1.5m [six feet] but no longer than 4.5m.

For European connection, select a power supply cord that is internationally harmonized and marked “<HAR>”, 3 - conductor, minimum 1.0 mm² wire, rated at 300 V, with a PVC insulated jacket. The cord must have a molded plug rated at 250 V, 10 A.

16. High Leakage Current



Warning: High leakage current; Earth connection essential before connecting supply.

17. Add GND connection information



Before connecting this device to the power line, the protective earth terminal screws of this device must be connected to the protective earth in the building installation. (GND Connection Information):

The building installation shall provide a means for a connection to protective earth; and the equipment shall be permanently connected to that by a service person.

A SERVICE PERSON shall check whether or not the socket - outlet from which the equipment is to be powered provides a connection to the building protective earth. If not, the SERVICE PERSON shall arrange for the installation of a PROTECTIVE EARTHING CONDUCTOR from the separate protective earthing terminal to the protective earth wire in the building. The equipment shall be installed in area where equipotential bonding exists ((such as a telecommunication centre or a dedicated computer room).

18. Interconnection Of Units



Cables for connecting to the unit RS232 and Ethernet Interfaces must be UL certified type DP-1 or DP-2. (Note- when residing in non LPS circuit)

Overcurrent Protection: A readily accessible Listed branch circuit overcurrent protective device rated 20 A must be incorporated in the building wiring.

19. Hazardous Radiation Exposure



Caution – Use of controls or adjustment or performance of procedures other than those specified herein may result in hazardous radiation exposure.



CLASS 1 LASER PRODUCT and reference to the most recent laser standards IEC 60 825-1:1993 + A1:1997 + A2:2001 and EN 60825-1:1994+A1:1996+ A2:2001

20. Proper Enclosure



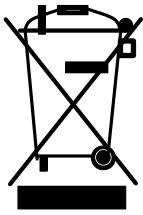
A suitable electrical, mechanical and fire enclosure shall be provided by the end product manufacturer and or the end user.

21. Do Not Use the Gateway as a Shelf or Work Space



Caution: Slide/rail mounted equipment is not to be used as a shelf or a work space. The rails are not intended for sliding the unit away from the rack. It is for permanent installation at final resting place only, not used for service and maintenance

22. WEEE Directive



According to the WEEE Directive 2002/96/EC, all waste electrical and electronic equipment (EEE) should be collected separately and not disposed of with regular household waste.

Dispose of this product and all of its parts in a responsible and environmentally friendly way.

23. Country of Norway Power Restrictions



This unit is intended for connection to a TN power system and an IT power system of Norway only.

3.1.1 Battery Replacement

Mellanox Technologies does not support battery replacement. Customer removal of the gateway cover will void the warranty. Only Remove the cover to comply with WEEE directives or to disassemble for environmentally approved disposal.



Customer removal of the cover will void the warranty.



There is a danger of explosion if the battery is incorrectly replaced.
DO NOT replace the battery.
Dispose of used batteries according to manufacturer's instructions.

3.2 Package Contents

Before you install your new gateway, unpack the system and check to make sure that all the parts have been sent, check this against the parts list below. Check the parts for visible damage that may have occurred during shipping.

The gateway comes packed with the following items:

- 1 – gateway
- 1– power cable for each PS unit – Type C13-C14

- Documentation – QSG
- 1 – China RoHS statement



If anything is damaged or missing, contact your customer representative immediately.
For customer support go to:
www.mellanox.com => Support => Customer Support Portal Login

3.3 Mechanical Installation

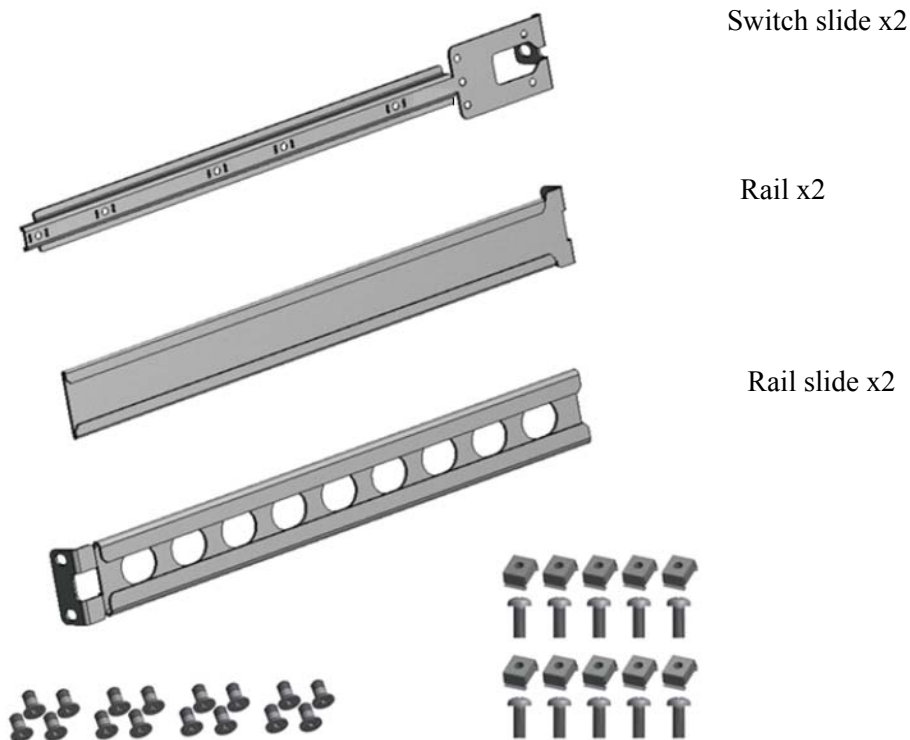
Tools and Customer Supplied Parts:

- Phillips Screwdrivers #1 and #2
- ESD strap
- ESD mat
- Grounding screw
- Grounding wire sufficient to reach a valid ground.

. Parts included in the rail kit:

- 2 rails
- 2 rail slides
- 2 gateway slides
- 16 recessed flat head screws You will have extras!
- 10 caged nuts
- 10 pan head screws M6

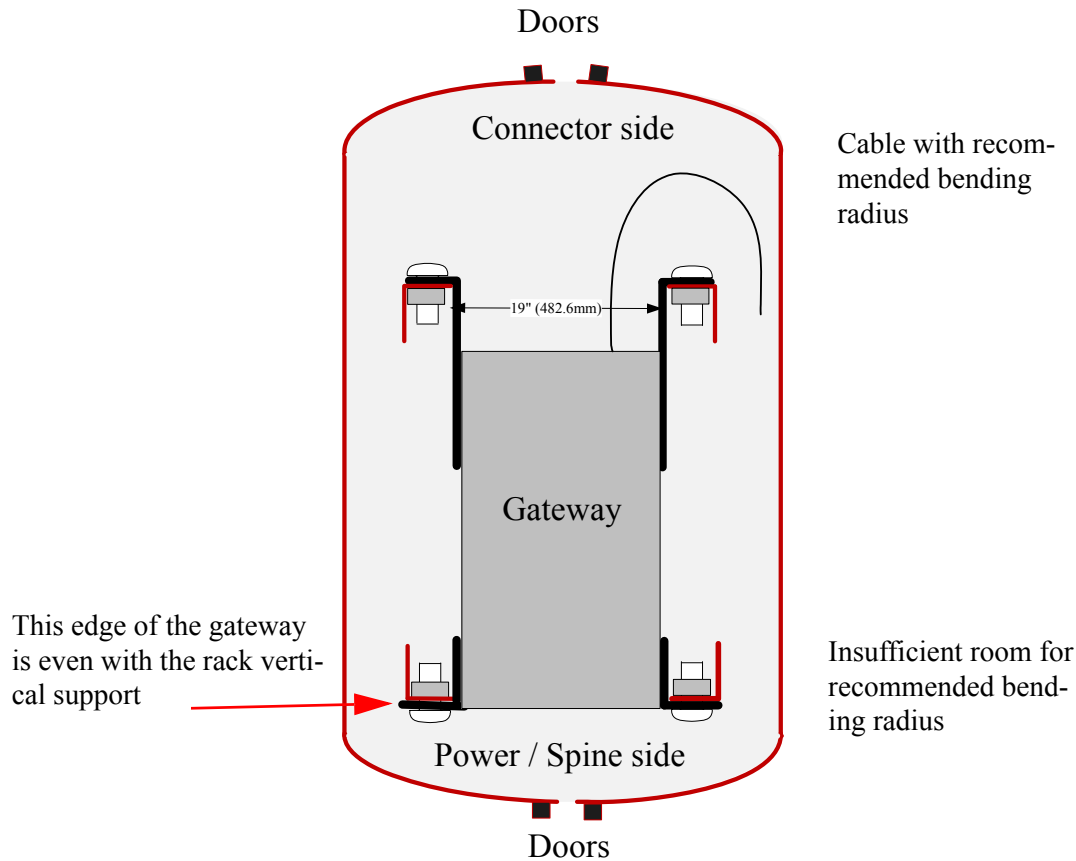
Figure 21: Rack Rail Kit Parts



1. Place the ESD mat on the floor where you will be working and put on the ESD strap. Make sure the ESD strap is touching your skin and that the other end is connected to a verified ground.

2. Choose which side of the gateway you want even with the rack vertical support. Either the side with the power supply units or the side with the QSFP connectors can be even with one of the vertical rack supports.

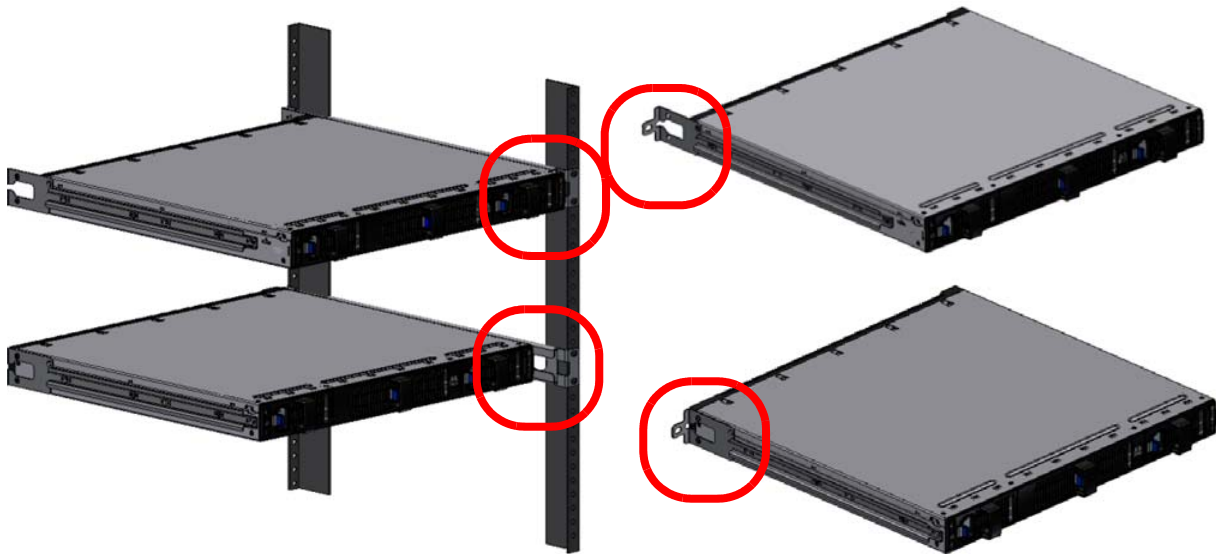
Figure 22: Placement of Gateway in Rack



Consider the following when deciding where and how to mount the rails and rail slides:

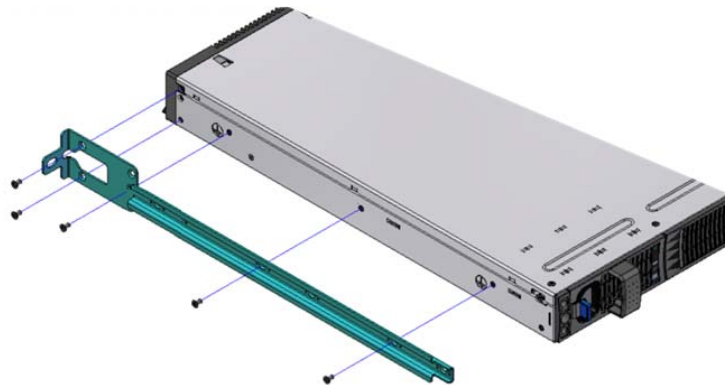
The distance between the rack and the door can be as little as 1.57" (4 cm) on one side of the rack and as much as 7" (18 cm) on the other side of the rack. Keep in mind that there can be as many as 36 cables connected to the gateway.

- Do you want the connector side recessed in the rack to allow for a larger cable bending radius? It is possible to recess the connector side by 2" (5cm) by optional placement of the gateway rails. See Figure 23, "Mounting Options".
- Will the connector side be recessed past other equipment in the rack and will this be problematic?
- The installation kit allows for a 2" (5cm) recess of the gateway past the vertical support.
- Make sure the gateway air flow is compatible with your installation selection.

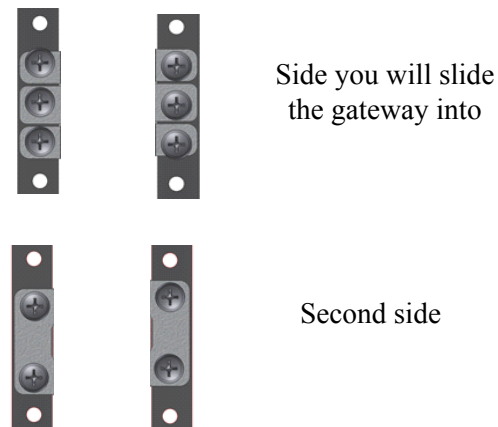
Figure 23: Mounting Options

➤ **Installing the gateway slides on the gateway**

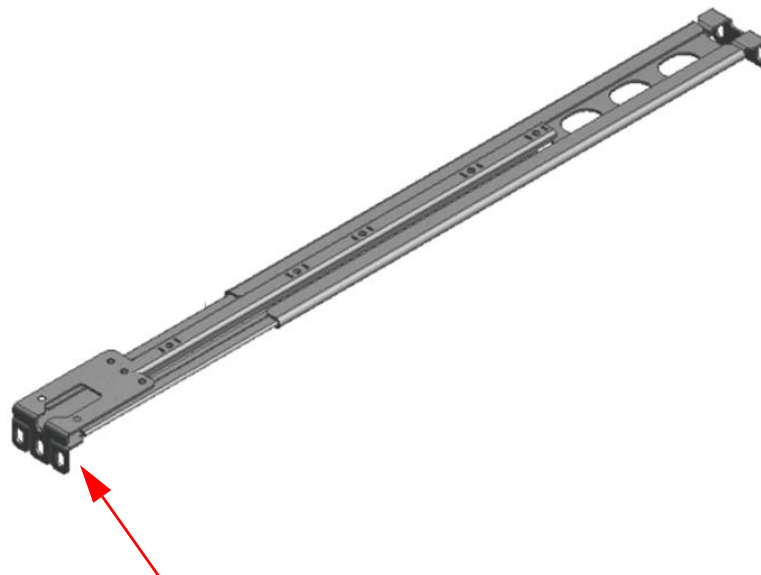
1. Decide which mounting option you want to use.
2. Screw the gateway slides onto the gateway. Use 5 flat head screws for short gateway and 7 screws for standard depth gateway, to connect each gateway slide.

Figure 24: Screwing on the Rail

5 screws per side are needed for the short gateway.
7 screws per side are needed for the standard gateway.
There are 16 screws in the kit; you will have left over screws.

Figure 25: Inserting the Caged Nuts

3. Clip 6 caged nuts into the holes in the rack on the side of the rack you will be sliding the gateway into. Check that both sides of the gateway, power side and connector side, are at the same level in the rack.
4. Clip 4 more caged nuts into the holes on the opposite side of the rack. Check that both sides of the gateway, left and right, are the same level in the rack.
5. Slide the rail into the rail slide.
6. Using two of the bolts for each corner install the rails and rail slides in the rack. Do not tighten the bolts yet.

Figure 26: Slide the Rail into the Rail Slide

This side of the rail kit goes on the side of the rack you will slide the gateway into. This is the same side of the gateway that will be next to the vertical support.

7. Slide the gateway into the rails.
8. Put the gateway into place and screw the bolts into the nuts. Tighten the bolts to 9.2 Nm or 81.5 pound inches.
9. Ground the gateway.
10. Plug in the power cables. Wait at least 5 seconds between inserting the first power supply cord and inserting the second power supply cord.



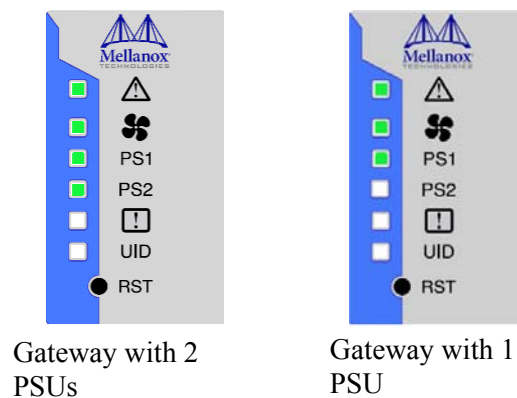
Wait at least 5 seconds between inserting the first power supply cord and inserting the second power supply cord. If you do not wait long enough before inserting the second power cord the LED for the second PSU may not work at all.



If you do not wait long enough before inserting the second power cord the LED for the second PSU may light up red.

11. Check the Status LEDs and confirm that all of the LEDs show status lights consistent with normal operation.

Figure 27: Status LEDs 5 Minutes After Power On



Any yellow or red status LEDs are cause for concern and must be dealt with immediately.

It can take up to 5 minutes to boot up, during which time the status LED may indicate red.

12. You can start connecting all of the cables to the gateway.

3.4 Grounding the Gateway

Check to determine if your local or national electrical codes require an external ground to all IT components. If so, connect a ground wire to one of the casing screws and connect the other end to a valid ground. If you choose to not use the ground screw, make sure that the rack is properly grounded and that there is a valid ground connection between the chassis of the gateway and the

rack. Test the ground using an Ohm meter.



Some national and/or local codes may require IT components to be bonded and externally grounded (not including the power cord ground). You must follow all national and local codes when installing this equipment.

3.5 Power Connections and Initial Power On

The gateway platform ships with 2 power supply units. Each supply has a separate AC receptacle. The input voltage is auto-adjusting for 100 - 240VAC, 50-60Hz power connections. The power cords should be standard 3-wire AC power cords including a safety ground and rated for 15A or higher.



Caution: The gateway platform will automatically power on when AC power is applied. There is no power switch. Check all boards, power supplies, and fan tray modules for proper insertion before plugging in a power cable.



This unit is intended for installation in a Restricted Access Location. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security.



Caution: After inserting a power cable and confirming the green system status LED light is on; make sure that the Fan Status indicator shows green.



Caution: When turning off the gateway, make sure ALL Connector LEDs are off to ensure a powered down status.

Figure 28: Two Power Inlets - Electric Caution Notifications

CAUTION	ACHTUNG	ATTENTION
Risk of electric shock and energy hazard. The two PS units are independent.	Gefahr des elektrischen Schocks. Entfernen des Netzsteckers eines Netzteils spannungsfrei. Um alle Einheiten spannungsfrei zu machen sind die Netzstecker aller Netzteile zu entfernen	Risque de choc et de danger électriques. Le débranchement d'une seule alimentation stabilisée ne débranchera uniquement qu'un module "Alimentation Stabilisée". Pour isoler complètement le module en cause, il faut débrancher toutes les alimentations stabilisées.
Disconnect all power supplies to ensure a powered down state inside of the switch platform.		

3.6 Extracting and Inserting FRUs



Never run the gateway for more than 5 minutes with an uncovered (open) PSU or Fan slot.

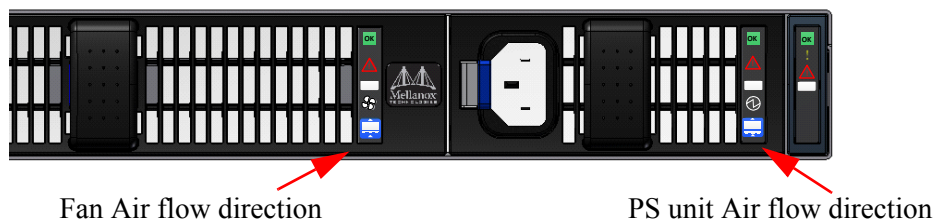
3.6.1 Extracting and Inserting the Power Supply Unit

With both power supplies installed in the redundant configuration, either PS unit may be extracted without bringing down the system.



Make sure that the PS unit that you are NOT replacing is showing all green, for both the PS unit and status LEDs.

Figure 29: Fan and PS unit Air Flow Direction

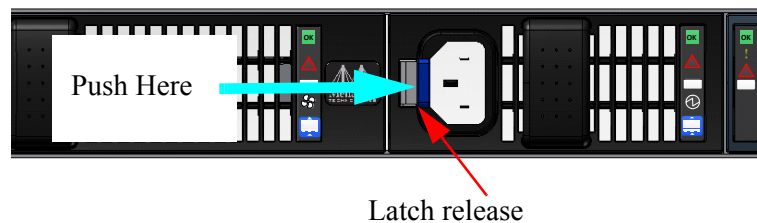


See Section 2.4 on page 24 for more information on air flow direction.

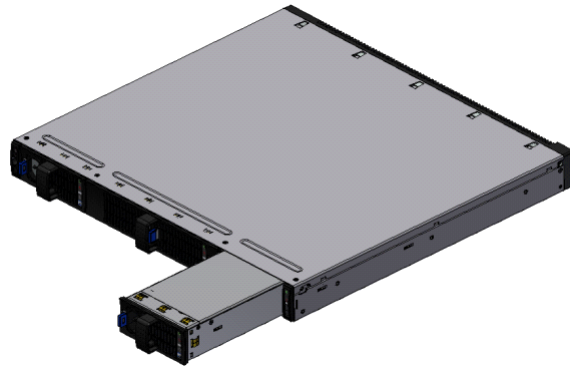


Power supply units have directional air flows similar to the fan module. The Fan module airflow must coincide with the airflow of all of the PS units. If the PS unit airflow direction is different from the fan module airflow direction the gateway internal temperature will be affected.

Figure 30: Power Supply Unit Extraction



If you are not immediately installing a new PSU you must install a blank so that the air flow for cooling the gateway is not compromised.

Figure 31: PS Unit Pulled Out

➤ **To extract a PS unit:**

1. Remove the power cord from the power supply unit.
2. Grasping the handle with your right hand, push the latch release with your thumb while pulling the handle outward. As the PS unit unseats, the PS unit status LEDs will turn off.
3. Remove the PS unit.

➤ **To insert a PS unit:**

1. Make sure the mating connector of the new unit is free of any dirt and/or obstacles.



Do not attempt to insert a PS unit with a power cord connected to it.

2. Insert the PS unit by sliding it into the opening until a slight resistance is felt.
3. Continue pressing the PS unit until it seats completely. The latch will snap into place confirming the proper installation.
4. Insert the power cord into the supply connector.
5. Insert the other end of the power cord into an outlet of the correct voltage.



The green PS unit indicator should light. If not, repeat the whole procedure to extract the PS unit and re-insert it.

3.6.2 Extracting and Inserting the Fan Units

This gateway can operate indefinitely with less than a full compliment of fans in the fan modules operating properly so long as the ambient temperature is below 45° Celsius.



This unit is intended for installation in a Restricted Access Location. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security.



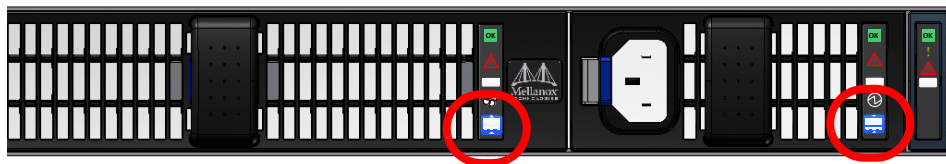
Operation without a fan unit should not exceed two minutes.
During fan hot-swap, if the LED indicator is OFF then the fan unit is disconnected.

There are two possible air flows for the fan unit. The air flow depends on the gateway model. See “Air Flow” on page 24 for an explanation of the model numbers and labels.



Make sure that the fans have the air flow that matches the model number. An air flow opposite to the gateway design will cause the gateway to operate at a higher (less than optimal) temperature.

Figure 32: Air Flow Labels



These air flow labels must be the same

➤ **To extract a Fan Unit:**

1. Using two fingers, push both latch releases towards each other simultaneously while pulling the fan module out of the gateway. As the fan unseats, the fan status indicator will turn off.
2. Remove the fan unit.

Figure 33: Fan Module Latch



These two latches must be pushed towards each other at the same time while the module is pulled out.

➤ **To insert a FAN Unit:**

1. Make sure the mating connector of the new unit is free of any dirt and/or obstacles.

2. Insert the fan unit by sliding it into the opening until slight resistance is felt. Continue pressing the fan unit until it seats completely.



The green fan status indicator should light. If not, extract the fan unit and reinsert it. After two unsuccessful attempts to install the fan unit, power off the gateway before attempting any system debug.

3.7 Configuration

3.7.1 Configuring the Gateway for the First Time

The procedures described in this chapter assume that you have already installed and powered-on your gateway according to the instructions in this document.

These gateways must be configured before they will work. Follow the procedures below to configure the gateway

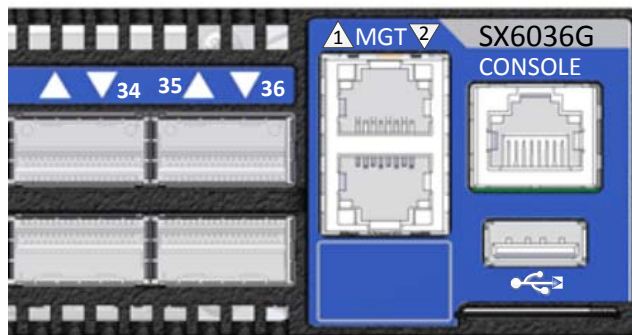
➤ ***To configure the Gateway:***

1. Connect the host PC to the Console (RJ-45) port of the gateway system using the supplied cable. The Console ports for systems are shown below as examples.

The port labelled CONSOLE must be connected to a local host PC. This must be used the first time the gateway is connected. This must be done before any remote management is available.

Hook up the supplied harness cable (HAR00028) from the connector labelled CONSOLE to the DB9 connector of the local host PC.

Figure 34: Console Port



Make sure to connect to the Console RJ-45 port of the gateway and not to the (Ethernet) MGT port.



No remote IP connection is available at this stage.

2. Configure a serial terminal program (for example, HyperTerminal, minicom, or Tera Term) on your host PC with the settings described in [Table 14](#).

Table 14 - Serial Terminal Program Configuration

Parameter	Setting
Baud Rate	9600
Data bits	8
Stop bits	1
Parity	None
Flow Control	None

3. Login (from a serial terminal program) as *admin* and use *admin* as password. This starts the Mellanox configuration wizard.
4. Go through the Mellanox configuration wizard. [Table 15](#) shows an example of a wizard session.

Table 15 - Configuration Wizard Session - DHCP (Sheet 1 of 2) Configuration (Example)

Wizard Session Display	Comments
Mellanox configuration wizard Do you want to use the wizard for initial configuration? yes	You must perform this configuration the first time you operate the gateway or after resetting the gateway . Type 'y' and then press <Enter>.
Step 1: Hostname? [gateway]	If you wish to accept the default hostname, then press <Enter>. Otherwise, type a different hostname and press <Enter>.
Step 2: Use DHCP on mgmt0 interface? [no] yes	Perform this step to obtain an IP address for the gateway . (mgmt0 is the management port of the gateway .) If you wish the DHCP server to assign the IP address, type 'yes' and press <Enter>. If you type 'no' (no DHCP), then you will be asked whether you wish to use the 'zeroconf' configuration or not. If you enter 'no' (no Zeroconf), then you need to enter a <i>static</i> IP, and the session will continue.
Step 3: Enable IPv6? [yes]	The management interface will be able to use IPv6 addresses.

Table 15 - Configuration Wizard Session - DHCP (Sheet 2 of 2) Configuration (Example)

Wizard Session Display	Comments
Step 4: Enable IPv6 auto-config (SLAAC) on mgmt0 interface? [no]	This turns on auto-configuration of the IPv6 addresses. This is unsuitable for DHCPv6.
Step 5: Enable DHCPv6 on mgmt0 interface? [no]	To enable DHCPv6 on the MGMT0 interface.
Step 6: Admin password (Press <Enter> to leave unchanged)? <new_password> Step 6: Confirm admin password? <new_password>	To avoid illegal access to the machine, please type a password and then press <Enter>. Then confirm the password by re-entering it. Note that password characters are <i>not</i> printed.
You have entered the following information: <A summary of the configuration is now displayed.> To change an answer, enter the step number to return to or hit <enter> to save changes and exit. Choice: <Enter> Configuration changes saved.	The wizard displays a summary of your choices and then asks you to confirm the choices or to re-edit them. Either press <Enter> to save changes and exit, or enter the configuration step number that you wish to return to. Note: To re-run the configuration wizard run the command “configuration jump-start” in Config mode.

The table below shows an example of static IP configuration for mgmt0 interface.

Table 16 - Configuration Wizard Session - Static IP Configuration

Wizard Session Display - Static IP Configuration (Example)
<p>Mellanox configuration wizard</p> <p>Do you want to use the wizard for initial configuration? yes</p> <p>Step 1: Hostname? [gateway]</p> <p>Step 2: Use DHCP on mgmt0 interface? [yes] no</p> <p>Step 3: Use zeroconf on mgmt0 interface? [no]</p> <p>Step 4: Primary IP address? [for example 192.168.10.4] 10.10.10.10 Mask length may not be zero if address is not zero (interface eth0)</p> <p>Step 5: Netmask? [0.0.0.0] 255.255.255.0</p> <p>Step 6: Default gateway? [for example 192.168.10.1] 10.10.10.255</p> <p>Step 7: Primary DNS server?</p> <p>Step 8: Domain name?</p> <p>Step 9: Enable IPv6? [yes]</p> <p>Step 10: Enable IPv6 autoconfig (SLAAC) on mgmt0 interface? [no]</p> <p>Step 11: Admin password (Enter to leave unchanged)?</p> <p>To change an answer, enter the step number to return to. Otherwise hit <enter> to save changes and exit.</p> <p>Choice:</p> <p>Configuration changes saved.</p> <p>To return to the wizard from the CLI, enter the “configuration jump-start” command from configure mode. Launching CLI...</p> <p>></p>

The table below shows an example of a Zeroconf wizard session.

Table 17 - Configuration Wizard Session - Zeroconf Configuration

Wizard Session Display - IP Zeroconf Configuration (Example)
<p>Mellanox configuration wizard</p> <p>Do you want to use the wizard for initial configuration? yes</p> <p>Step 1: Hostname? [gateway]</p> <p>Step 2: Use DHCP on mgmt0 interface? [yes] no</p> <p>Step 3: Use zeroconf on mgmt0 interface? [no] yes</p> <p>Step 4: Default gateway? [For example:192.168.10.1]</p> <p>Step 5: Primary DNS server?</p> <p>Step 6: Domain name?</p> <p>Step 7: Enable IPv6? [yes]</p> <p>Step 8: Enable IPv6 autoconfig (SLAAC) on mgmt0 interface? [no]</p> <p>Step 9: Admin password (Enter to leave unchanged)?</p> <p>To change an answer, enter the step number to return to.</p> <p>Otherwise hit <enter> to save changes and exit.</p> <p>Choice:</p> <p>Configuration changes saved.</p> <p>To return to the wizard from the CLI, enter the “configuration jump-start” command from configure mode. Launching CLI...</p> <p>></p>

- Before attempting a remote (for example, SSH) connection to the gateway , check the mgmt0 interface configuration. Specifically, verify the existence of an IP address. To check the current mgmt0 configuration, enter the following commands:

```
switch > enable
switch # configure terminal
switch (config) # show interfaces mgmt0
```

The following is an example of the output:

```
Interface mgmt0 state
  Admin up:          yes
  Link up:           yes
  IP address:        192.168.10.43
  Netmask:           255.255.255.0
  Speed:             1000Mb/s (auto)
  Duplex:            full (auto)
  Interface type:    ethernet
  Interface source:  physical
  MTU:               1500
  HW address:        00:02:C9:11:2A:AE
  Comment:
```


RX bytes:	1343502058	TX bytes:	313920869
RX packets:	17589211	TX packets:	992717
RX mcast packets:	0	TX discards:	0
RX discards:	0	TX errors:	0
RX errors:	0	TX overruns:	0
RX overruns:	0	TX carrier:	0
RX frame:	0	TX collisions:	0
		TX queue len:	1000



Confirm that the latest SW revision is installed on this device. Use the CLI to get the currently installed revision and then go to Mellanox.com to check the revision of the latest version.

6. Run the command:

```
show version
```

7. Compare the results of this command with the latest version for your gateway posted on the [support page for your switch](#). This page will need a support login and password.

3.7.2 Starting a Remote connection and opening a Command Line (CLI)

There are two ways to access the management CPU:

- Via the Ethernet connector for remote access:
 - SSH
 - Telnet
 - Web
 - SNMP
 - XML



For additional information on the MLNX-OS refer to MLNX-OS User Manual and MLNX-OS Command Reference Guide located on Mellanox support web.

1. Set up an Ethernet connection between the gateway and a local network machine using a standard RJ-45 connector.
2. Start a remote secured shell (SSH) to the gateway using the command: “ssh -l <username> <gateway_IP_address>”, where the <gateway_IP_address> is the IP address of the gateway .

```
rem_mach1 > ssh -l <username> <ip address>
```

```
Mellanox MLNX-OS Switch Management
```

```
Last login: Thu Aug 28 11:24:13 2013 from 192.168.10.1
```

```
Mellanox Switch
```

```
switch >
```

3. Login to the gateway (default username is *admin*, password *admin*).
 4. Once you get the prompt, you are ready to use the system. Refer to *MLNX-OS Command Reference Guide* for additional information on the CLI commands.
 5. You can enter any supported command now.
- **Rerunning the Wizard**
6. If you want to rerun the wizard run the following commands:

```
switch > enable  
switch# configure terminal  
switch (config) # configuration jump-start
```

4 Cabling

4.1 Cable Installation



For a list of approved cables for these gateway see http://www.mellanox.com/related-docs/user_manuals/Mellanox_approved_cables.pdf

All cables can be inserted or removed with the unit powered on. To insert a cable, press the connector into the port receptacle until the connector is firmly seated. The LED indicator, corresponding to each data port, will light when the physical connection is established (that is, when the unit is powered on and a cable is plugged into the port with the other end of the connector plugged into a functioning port). After plugging in a cable, lock the connector using the latching mechanism particular to the cable vendor. When a logical connection is made the LED will change to green for IB and orange for Eth. When data is being transferred the light will blink green.

To remove, disengage the locks and slowly pull the connector away from the port receptacle. The LED indicator for that port will turn off when the cable is unseated.

Care should be taken not to impede the air flow through the ventilation holes next to the connector ports. Cable lengths should be used which allow for routing horizontally around to the side of the gateway before bending upward or downward in the rack.

4.2 Splitting the Data Stream Using Breakout (Fanout) Cables

Specific ports can be split by using a QSFP 1X4 breakout cable to split one 40 GbE port into 4 lanes (4 SFP+ connectors 10 GbE each). These 4 lanes then go, one lane to each of the 4 SFP+ connectors. Some ports can be split into 2 10 GbE ports, using lanes 1 and 2 only. When a QSFP port is split into 2 10 GbE ports then only SFP+ connectors #1 and #2 are used. Connectors #3 and #4 are left unconnected. Using Figure 36 and Table 18, with breakout cables you can achieve 13 ports of 10 Gb/s.

Figure 35: Breakout or Fanout Cable

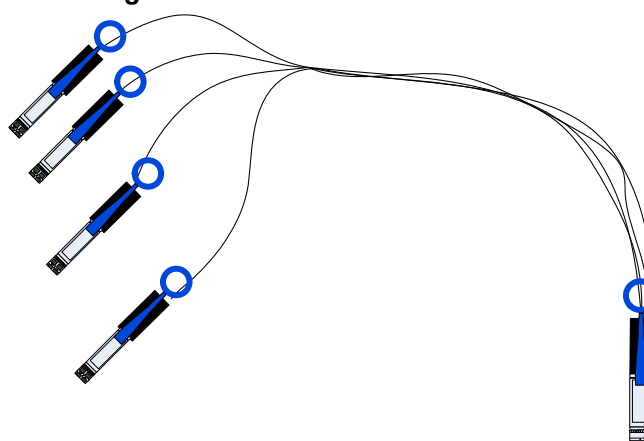
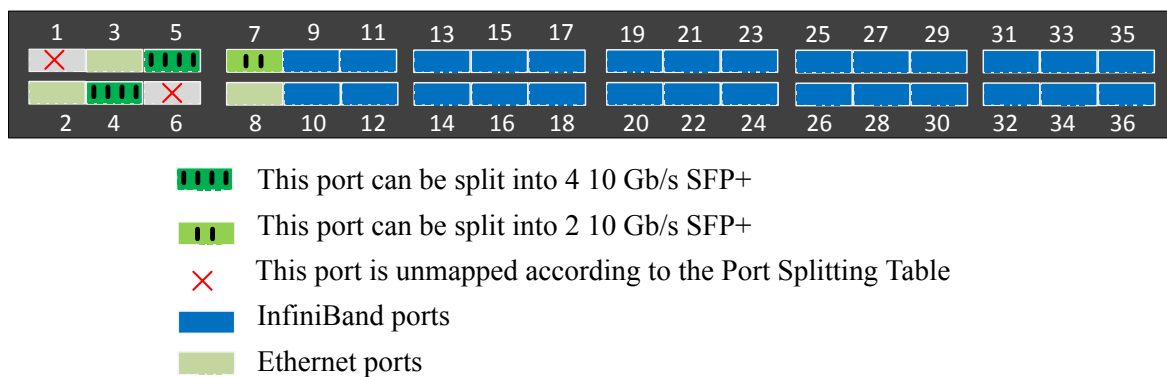


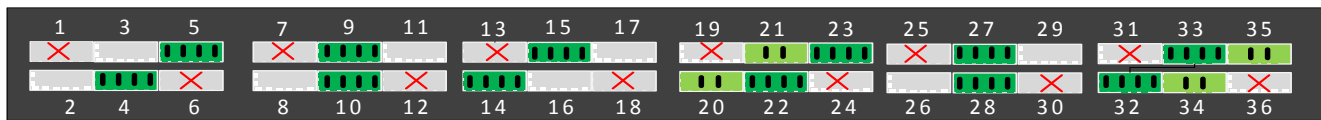
Figure 36: Port Splitting Options

The maximum 10 Gb/s Ethernet ports configurable with this gateway is 13.

Table 18 - Port Splitting Table

Port #	Can be split to 4	Turns off port #	Can be split to 2
1	—		—
2	—		—
3	—		—
4	✓	1	—
5	✓	6	—
6	—		—
7	—		✓
8	—		—

Future Software versions will support full flexibility to include individual port configuration with splittable ports as per Figure 37 and Table 19.

Figure 37: Port Splitting Options

This port can be split into 4 10 Gb/s SFP+



This port can be split into 2 10 Gb/s SFP+



This port is unmapped according to the Port Splitting Table

The maximum 10 Gb/s Ethernet ports configurable with this switch is 64.

When using a port to split a data stream into 4-10 Gb/s data streams (four lanes) one of the other ports on the gateway will be disabled (unmapped). See Table 19 to determine:

- which ports can be split into 4
- which ports can be split into 2
- which ports will be unmapped due to a 1X4 split
- When using this feature you **MUST** go into the MLNX-OS® chassis management system and reconfigure the individual ports to split-2 or split -4. See the MLNX-OS® CLI User Manual for instructions on port configuration.

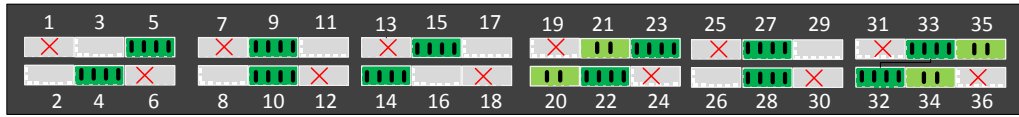
When using this feature you **MUST** go into the MLNX-OS® chassis management system and reconfigure the individual ports to split-4 or split-2. See the MLNX-OS® Software Command Reference Guide for instructions on port configuration.

Table 19 - Port Splitting Options

Port #	Can be split to 4	Turns off port #	Can be split to 2	Port #	Can be split to 4	Turns off port #	Can be split to 2
1	—		—	19	—		
2	—		—	20	—		✓
3	—		—	21	—		✓
4	✓	1	—	22	✓	19	—
5	✓	6	—	23	✓	24	—
6	—		—	24	—		—
7	—		✓	25	—		—
8	—		—	26	—		—
9	✓	12	—	27	✓	30	—

Table 19 - Port Splitting Options

Port #	Can be split to 4	Turns off port #	Can be split to 2	Port #	Can be split to 4	Turns off port #	Can be split to 2
10	✓	7	—	28	✓	25	—
11	—		—	29	—		—
12	—		—	30	—		—
13	—		—	31	—		—
14	✓	13	—	32	✓	31	—
15	✓	18	—	33	✓	36	—
16	—		—	34	—		✓
17	—		—	35	—		✓
18	—		—	36	—		—

Figure 38: 3 Examples of Port Mapping Assignment**64 X10 GbE****DO NOT USE
THESE PORTS**

12 x 40GbE ports blocked = 00 10GbE ports



12 x 40GbE ports split to 4 10GbE ports = 48 10GbE ports

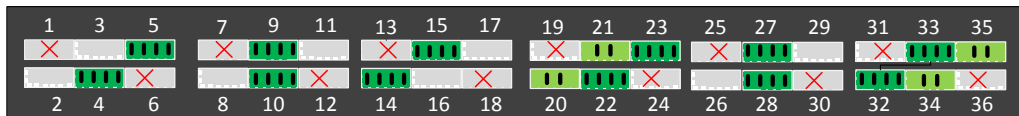


4 x 40GbE ports split to 2 10GbE ports = 8 10GbE ports



8 x 40GbE ports used as 10GbE ports = 8 10GbE ports

Total = 64 x 10GbE ports

56 x 10GbE and 8 x 40GbE**DO NOT USE
THESE PORTS**

12 x 40GbE ports blocked = 00 10GbE ports + 00 40GbE ports



12 x 40GbE ports split to 4 10GbE ports = 48 10GbE ports

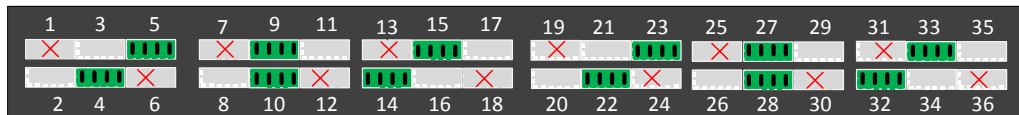


4 x 40GbE ports split to 2 10GbE ports = 8 10GbE ports



8 x 40GbE ports used as 40GbE ports = 8 x 40GbE ports

Total = 56 x 10GbE and 8 x 40GbE ports

48 x 10GbE and 12 x 40GbE**DO NOT USE
THESE PORTS**

12 x 40GbE ports blocked = 00 10GbE ports + 00 40GbE ports



12 x 40GbE ports split to 4 10GbE ports = 48 10GbE ports



12 x 40GbE ports used as 40GbE ports = 12 40GbE ports

Total = 48 x 10GbE and 12 x 40GbE

5 Gateway Management

Managed gateways come with a management chip and MLNX-OS software. The MLNX-OS® gateway management package can be downloaded from:

http://support.mellanox.com/SupportWeb/software_products/fm_products/mlnx_os. For additional information on the MLNX-OS refer to MLNX-OS User Manual and MLNX-OS Command Reference Guide located on Mellanox support web.

5.1 Upgrading Software

Software and firmware updates are available from the Mellanox Support website. Check that your current revision is the same one that is on the Mellanox website. If not upgrade your software. Copy the update to a known location on a Remote server within the user's LAN.

Use the CLI or the GUI in order to perform software upgrades. For further information please refer to the MLNX-OS Software User Manual section Upgrading MLNX-OS® Software.

Be sure to read and follow all of the instructions regarding the updating of the software on your gateway system.

6 Troubleshooting

As soon as a gateway is plugged in make sure that the green power LEDs on the PS units are on.

Issue 1. Gateway Status (health) LED:

If this LED is **red** unplug the gateway and call your Mellanox representative.

If this LED is **off**:

1. Check that there is adequate ventilation. Are the fan LEDs showing that the fans are all up and running?
2. Make sure that there is nothing blocking the front or rear of the gateway and that the fan modules and ventilation holes are not blocked (especially dust over the holes).
3. If you find dust blocking the holes it is recommended to clean the fan unit and remove the dust from the front and rear panels of the gateway using a vacuum cleaner.

Issue 2. Power supply unit:

If the LED on the PS unit is not lit or is red, check that the power cable is plugged into a working outlet.

1. Check that the power cable has a voltage within the range of 100 - 240 volts AC.
2. Remove and reinstall the power cable.

Issue 3. The green LED for the fans does not come on:

1. Check that at least one power LED is green.



Do not run the gateway if the System Status LED for the Fans is Red!

Issue 4. The link LED for the connector does not come on:

1. Check that both ends of the cable are connected.
2. Check that the locks on the ends are secured.
3. Make sure that the latest firmware version is installed on all of the HCA cards and the gateway.
4. If media adapters are used, check that all connections are good, tight, and secure.

Issue 5. The activity LED does not come on:

When running IB check that the Subnet Manager has been started.

Issue 6. The gateway is off:

1. Unplug the gateway.
2. Wait 5 minutes.
3. Plug in the gateway.
4. If the gateway does not come on, check the power supplies.
5. If the gateway comes on, Use the MLNX-OS® management CLI to determine the cause of the Shutdown.
6. Check the temperature.
7. Check the Fan status.

Issue 7. The gateway is not working and unresponsive:

1. Reset the gateway.

If resetting the gateway does not work:

1. Unplug the gateway.
2. Wait 5 minutes.
3. Plug in the gateway.
4. If the gateway comes on, use the MLNX-OS® management CLI to determine the cause of the shutdown.

Issue 8. The last software update did not succeed:

1. Connect the RS232 connector (CONSOLE) to a laptop.
2. Push the reset button on the switch or management module.
3. You will have ~ 5 seconds to stop the U-Boot by pressing Control-B.
4. Choose the image to upload. Only use image 1 or image 2.

```

U-Boot 2009.01-mlnx1.4 (<date>)

CPU:   AMCC PowerPC 460EX Rev. A at 1000 MHz (PLB=200, OPB=100, EBC=100 MHz)
       Security/Kasumi support
       Bootstrap Option H - Boot ROM Location I2C (Addr 0x52)
       Internal PCI arbiter disabled
       32 kB I-Cache 32 kB D-Cache
Board: Mellanox PPC460EX Board
FDEF:  No
I2C:   ready
DRAM:  2 GB (ECC enabled, 400 MHz, CL3)
FLASH: 16 MB
NAND:  1024 MiB
PCI:   Bus Dev VenId DevId Class Int
PCIE0: link is not up.
PCIE1: successfully set as root-complex
       01 00 15b3 bd34 0c06 00
Net:   ppc_4xx_eth0, ppc_4xx_eth1
Hit Ctrl+B to stop autoboot:  0

Mellanox MLNX-OS

Boot Menu:
  1. SX_PPC_M460EX 3.2.0000-dev-HA 2013-04-10 12:02:49 ppc
  2. SX_PPC_M460EX 3.2.0000-dev-HA 2013-04-11 14:05:39 ppc
  3. U-Boot prompt
Choice:

```

5. Select the image to boot.

Appendix A: Specification

Table 20 - SX6036G Specification Data

Physical			
Size	SX6036G (Standard i.e. long)	1.716" (1U) H x 16.85" W x24.75" D 43.6mm X 427.9mm X 628.9 mm	
Weight / Center of Gravity	Weight: Standard:	8.02kg 1 PS unit 8.76kg 2 PS units	Center of Grav- ity: As measured from the Connector side, left side bottom corner. Standard: 1PS unit 21.6mm X 201mm X 337mm 2PS units 21.6mm X 214mm X 348mm
Mounting	Mounting:	19" Rack mount	
SerDes Speeds / Connector Types	SerDes Speeds:	10, 20, 40, or 56 Gb/s per port 10 GbE or 40GbE	Connector Types: QSFP Can use QSFP to SFP+ adapter modules
Air Flow/ Heat dissipation	Air Flow:	62 CFM	Heat dissipa- tion: 798 BTUs/hr Maximum
Power and Environmental			
Input Voltage / Management CPU	Input Voltage:	100 - 240 VAC 50-60Hz	Management CPU: PowerPC 460EX CPU
Power numbers	Power Consumption:	PS unit fan is always at 70%	Typ@Typ: 56 Gb/s Active Cables: 207W – 5.7W/port Passive cables: 126W – 3.5W/port
	Max@Max: 56 Gb/s Active Cables:	234W – 6.5 W/port Passive cables: 129W – 3.6W/port	
Cable power / Temperature	QSFP	MAX 2.0W TYP: 1.5W	Temperature: Operating 0° to 45° Celsius Non-operating -40° to 70° Celsius
Shock and Vibration/ Humidity	Shock and Vibration:	ETSI EN 300 019-2-2: 1999-09	Humidity: Operating 5% - 90% non-condensing

Protocol Support		
Speed protocol \ QoS / Management	IB: Auto-Negotiation of (56 Gb/s, 40 Gb/s, 10 Gb/s, 1 Gb/s)	Management: Managed using MLNX-OS
Data Rate	Data Rate: 56 Gb/s IB or 56GbE Ethernet	
Regulatory Compliance		
Safety \ EMC (Emissions)	Safety: US/Canada: cTUVus EU: IEC60950 International: CB Russia: GOST-R Argentina: S-mark DoC	EMC (Emissions): USA: FCC, Class A Canada: ICES, Class A EU: EN55022, Class A EU: EN55024, Class A EU: EN61000-3-2, Class A EU: EN61000-3-3, Class A Japan: VCCI, Class A Australia / New-Zealand: AS/NZS CISPR 22 class A
Environmental / Acoustic	Environmental: EU: IEC 60068-2-64: Random Vibration EU: IEC 60068-2-29: Shocks, Type I / II EU: IEC 60068-2-32: Fall Test	Acoustic: ISO 7779 ETS 300 753 71dB(A)/7.1 Bel
Scalability and Performance		
Switching Performance / Capacity	Switching Performance: Simultaneous wire-speed any port to any port	Switching Capacity: 4Tb/s
Reliability, Availability and Serviceability Features		
Hot swapability / Redundancy	Hot-Swappable: Fan Module 1+1 Redundant: Power Supplies	

A.1 Approved Cables

For a list of all approved cables see:

http://www.mellanox.com/related-docs/user_manuals/Mellanox_approved_cables.pdf

A.2 EMC Certifications

The list of approved certifications per switch in different regions of the world is located on the Mellanox Website at:

http://www.mellanox.com/related-docs/user_manuals/Regulatory_and_Compliance_Guide.pdf

A.3 China CCC Warning Statement

[illegible]

安全 说明 和标 记	汉文	仅适用于海拔2000m以下地区安全使用。
	藏文	《2000m རེད་གླ་གསོན་པོ་ལྟར་བྱ་བའི་ཁྲོམ་གྱི་སྒྲུབ་ཁོངས་ནང་ཉེན་མེད་བྱུང་བ་བྱེད་ཀྱི་བྱ་བ་ལུས།》
	蒙古文	“ “ᠳᠠᠨ ᠬᠠᠪ ᠶᠤᠩᠭᠡ ᠶ᠋ᠣᠸ᠎ᠠ ᠵᠢᠳᠢᠭᠢ ᠬᠠᠵᠢᠪᠠᠭ 2000m doxroengz haenx ancienz sawjyungᠭ. ”
	壮文	Dan hab yungh youq gij digih haijbaz 2000m doxroengz haenx ancienz sawjyungᠭ.
	维文	دېڭىز يۈزىدىن 2000 مېتر تۆۋەن رايونلاردا بىخەتەر ئىشلەتكىلى بولىدۇ

声明

此为 A 级产品, 在生活环境中, 该产品可能会造成无线电干扰。在这种情况下, 可能需要用户对其干扰采取切实可行的措施。

This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

Appendix B: Thermal Threshold Definitions

There are three thermal threshold definitions for the SwitchX® switch device which impact the overall switch system operation state: Warning, Critical and Emergency.

1. Warning – 100C

On managed systems only: When the SwitchX® device crosses the 100C threshold, a Warning Threshold message will be issued by the MLNX-OS® management SW, indicating to system administration that the switch has crossed the Warning threshold.

Note that this temperature threshold does not require nor lead to any action by hardware (such as switch shutdown).

2. Critical – 120C

When the SwitchX® device crosses this temperature, the firmware will automatically shut down the device.

3. Emergency – 130C

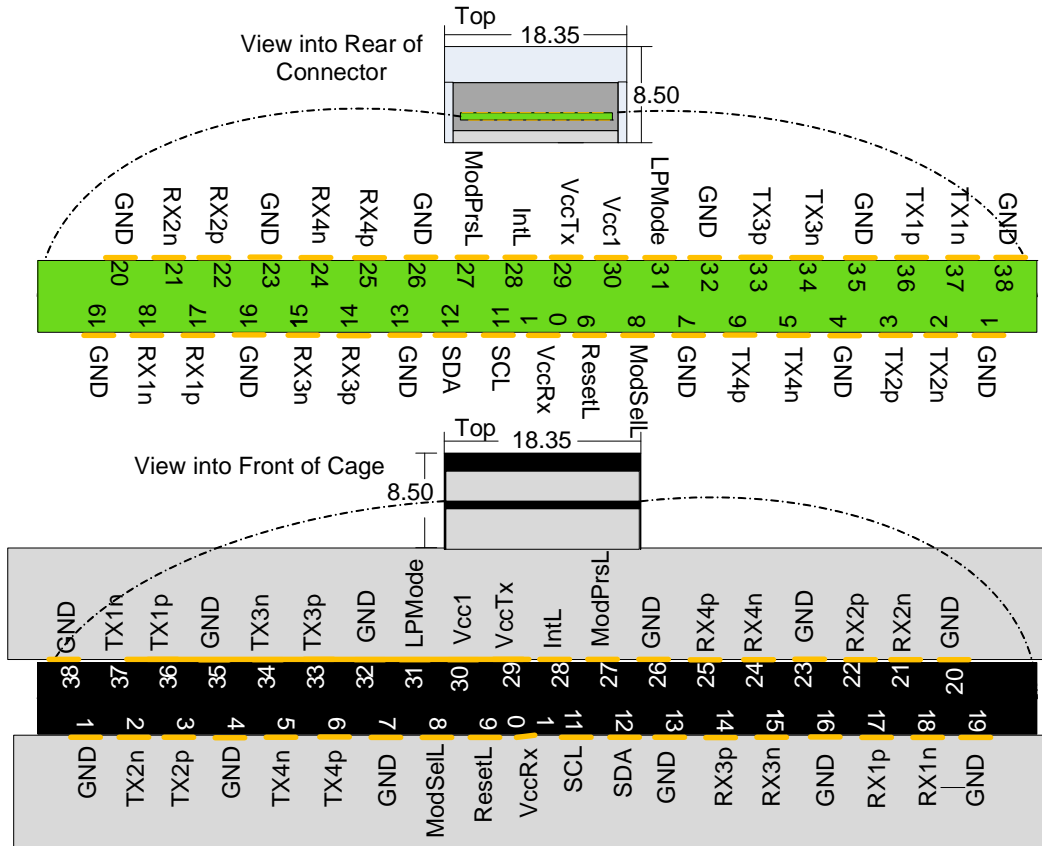
In case the firmware fails to shut down the SwitchX® device upon crossing the Critical threshold, the SwitchX® device will auto-shutdown upon crossing the Emergency (130C) threshold.

Appendix C: QSFP Interface

J3 and J6

20	GND	GND	19
21	Rx2n	Rx1n	18
22	Rx2p	Rx1p	17
23	GND	GND	16
24	Rx4n	Rx3n	15
25	Rx4p	Rx3p	14
26	GND	GND	13
27	ModPrsL	SDA	12
28	IntL	SCL	11
29	VccTx	Vcc Rx	10
30	Vcc1	ResetL	9
31	LPMODE	ModSelL	8
32	GND	GND	7
33	Tx3p	Tx4p	6
34	Tx3n	Tx4n	5
35	GND	GND	4
36	Tx1p	Tx2p	3
37	Tx1n	Tx2n	2
38	GND	GND	1

Connector Pin Number	Connector Pin Name	Signal Description
1	GND	Ground
2	Tx2n	Transmitter Inverted Data Input
3	Tx2p	Transmitter Non-Inverted Data Input
4	GND	Ground
5	Tx4n	Transmitter Inverted Data Input
6	Tx4p	Transmitter Non-Inverted Data Input
7	GND	Ground
8	ModSelL	Module Select
9	ResetL	Module Reset
10	Vcc Rx	+3.3 V Power supply receiver
11	SCL	2-wire serial interface clock
12	SDA	2-wire serial interface data
13	GND	Ground
14	Rx3p	Receiver Non-Inverted Data Output
15	Rx3n	Receiver Inverted Data Output
16	GND	Ground
17	Rx1p	Receiver Non-Inverted Data Output
18	Rx1n	Receiver Inverted Data Output
19	GND	Ground
20	GND	Ground
21	Rx2n	Receiver Inverted Data Output 3
22	Rx2p	Receiver Non-Inverted Data Output 3
23	GND	Ground
24	Rx4n	Receiver Inverted Data Output 3
25	Rx4p	Receiver Non-Inverted Data Output 3
26	GND	Ground
27	ModPrsL	Module Present
28	IntL	Interrupt
29	Vcc Tx	+3.3 V Power supply transmitter
30	Vcc 1	+3.3 V Power Supply
31	LPMODE	Low Power Mode
32	GND	Ground
33	Tx3p	Transmitter Non-Inverted Data Input
34	Tx3n	Transmitter Inverted Data Input
35	GND	Ground
36	Tx1p	Transmitter Non-Inverted Data Input
37	Tx1n	Transmitter Inverted Data Input
38	GND	Ground

Figure 39: QSFP Connector Male and Female Views

Appendix D: RJ-45 CONSOLE and I2C Interface

The RJ-45 CONSOLE and I2C interface uses the EIA 568A standard wiring color coding.

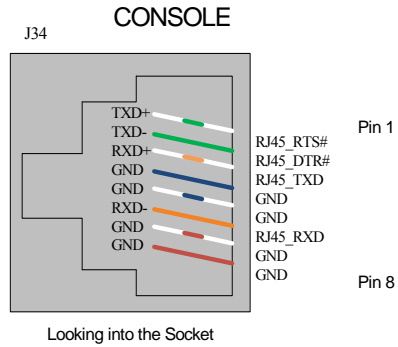


Table 21 - RJ-45 CONSOLE Pinout

Connection	Signal	Pin#	Color
TXD+	RJ-45_RTS#	1	G/W
TXD-	RJ-45_DTR#	2	G
RXD+	RJ-45_TXD	3	O/W
GND	GND	4	Bl
GND	GND	5	Bl/W
RXD-	RJ-45_RXD	6	O
GND	GND	7	Br/W
GND	GND	8	Br

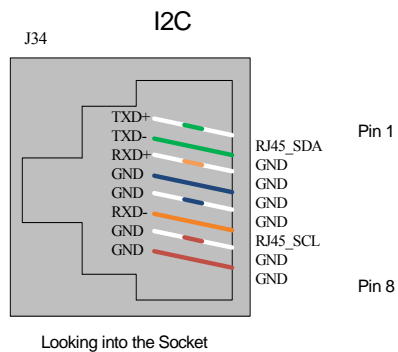


Table 22 - RJ-45 I2C Pinout

Connection	Signal	Pin#	Color
TXD+	RJ-45_SDA	1	G/W
TXD-	GND	2	G
RXD+	GND	3	O/W
GND	GND	4	Bl
GND	GND	5	Bl/W
RXD-	RJ-45_SCL	6	O
GND	GND	7	Br/W
GND	GND	8	Br

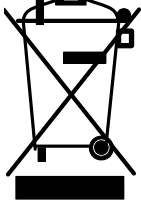
Appendix E: Accessory and Replacement Parts

Table 23 - OPNs for Replacement Parts

Part Description	OPN
I2C DB9 or RJ-45 to USB Adapter	MTUSB-1
Harness RS232 2M cable – DB9 to RJ-45 (for managed switches only)	HAR000028
Fan module with power supply side to connector side air flow	MSX60-FF
Fan module with connector side to power supply side air flow	MSX60-FR
300W Power Supply w/ Power Supply Side to Connector side air flow	MSX60-PF
300W Power Supply w/ Connector side to Power Supply side air flow	MSX60-PR
Power cord Type C13-C14	ACC000500

Appendix F: Disassembly of the Switch from the Rack

F.1 Disposal



According to the WEEE Directive 2002/96/EC, all waste electrical and electronic equipment (EEE) should be collected separately and not disposed of with regular household waste.

Dispose of this product and all of its parts in a responsible and environmentally friendly way.

Follow the instructions found in the Mellanox Web site at mellanox.com for proper instructions to disassemble and dispose of the Switch according to the WEEE directive.

Appendix G: Avertissements de sécurité pour l'installation (French)

1. Instructions d'installation

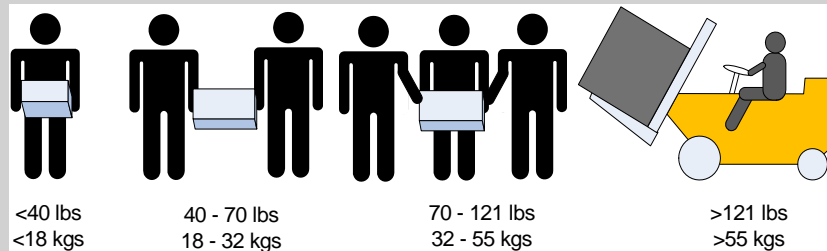


Veuillez lire la totalité des instructions d'installation avant de relier l'équipement au secteur.

2. Blessures à cause du poids



Prévoyez assez de personnel pour soulever ce produit en toute sécurité.



3. Équipement lourd



Cet équipement est très lourd et doit être déplacé avec un système de levage mécanique pour éviter les blessures.

4. Installation dans un emplacement à accès limité



Cette unité doit être installée dans un emplacement à accès limité.

5. Danger d'électrocution



Danger d'électrocution !

Lorsque le module de ventilation est retiré, les broches d'alimentation sont exposées dans l'emplacement du module.

NE PAS insérer d'outils ou la main dans l'emplacement du module.

6. Surchauffe



Cet équipement ne doit pas être en service dans un local dont la température dépasse le maximum recommandé de 45°C (113°F). En outre et pour garantir une circulation d'air correcte, laisser un espace d'au moins 8 cm (3") autour des orifices de ventilation.

7. Châssis empilé sur d'autres équipements



Le châssis ne doit pas être empilé sur d'autres équipements. S'il tombe, il peut endommager l'équipement ou entraîner des blessures.

8. Connexion de l'alimentation redondante : danger d'électrocution



Ce produit est équipé d'une alimentation redondante ou d'un cache si elle est absente. Dans ce dernier cas, ne pas faire fonctionner le produit si le cache est retiré ou mal fixé.

9. Fusibles phase/neutre



Ce système dispose de fusibles phase/neutre. Débranchez tous les cordons d'alimentation avant d'ouvrir le capot ou de toucher tout élément à l'intérieur.

10. Plusieurs prises d'alimentation



Risque et danger d'électrocution.
Les alimentations sont toutes indépendantes.
Pour s'assurer que le commutateur est bien hors tension, débranchez toutes les alimentations.

11. En cas d'orage, danger d'électrocution



Pendant un orage, ne pas travailler sur l'équipement ni brancher ou débrancher des câbles.

12. Connexion et déconnexion du câble InfiniBand en cuivre



Les câbles InfiniBand en cuivre sont lourds et peu flexibles. Par conséquent, il faut procéder avec soin pour les brancher ou les débrancher des connecteurs. Consulter le fabricant du câble pour obtenir des instructions ou des avertissements spécifiques.

13. Montage en rack et maintenance



Lors du montage ou de la maintenance de ce produit dans un rack, il faut faire spécialement attention pour s'assurer que l'ensemble reste stable. En règle générale, le rack doit être rempli en commençant par le bas.

14. Installation de l'équipement



Cet équipement ne doit être installé, remplacé et maintenu que par un personnel formé et qualifié.

15. Mise au rebut de l'équipement



La mise au rebut de cet équipement doit se faire conformément à toutes les lois et réglementations nationales.

16. Codes électriques locaux et nationaux



Cet équipement doit être installé conformément aux codes électriques locaux et nationaux.

17. Codes d'installation



Cet appareil doit être installé conformément à la version la plus récente des codes électrique nationaux. En Amérique du Nord, l'équipement doit être installé en respectant les exigences de l'US National Electrical Code et du Code canadien de l'électricité.

18. Remplacement de la batterie



Avertissement : ne remplacer qu'avec une batterie UL, certifiée pour accepter un courant de charge anormal maximal supérieur ou égal à 4 mA.

Si la batterie n'est pas remplacée par un type correct, il y a un risque d'explosion.

Les batteries usagées doivent être mises au rebut conformément aux instructions.

19. Cordon d'alimentation UL Listed et certifié CSA



Pour le branchement électrique en Amérique du Nord, utiliser un cordon d'alimentation UL Listed et CSA Certified, à 3 conducteurs [calibre 16 AWG], avec une prise moulée 125 V [13 A], faisant au moins 1,5 m de long [six pieds] et au plus 4,5 m.

Pour le branchement électrique en Europe, utiliser un cordon d'alimentation au format international harmonisé (marqué <HAR>), à 3 conducteurs d'au moins 1 mm² de section, 300 V, avec une gaine isolante en PVC. Le cordon doit avoir une prise moulée 250 V 10 A.

20. Courant de fuite élevé



Avertissement : courant de fuite élevé, une connexion à la terre est indispensable avant de brancher l'alimentation.

21. Information d'ajout de branchement à la terre (GND)



Avant de relier cet appareil au secteur, ses vis des bornes de la terre de protection doivent être reliées à la terre de l'installation électrique de l'immeuble. (Informations de branchement à la terre) :

L'installation électrique doit fournir une connexion à la terre, et un technicien de maintenance doit y relier l'équipement de façon permanente.

UN TECHNICIEN DE MAINTENANCE doit vérifier si la prise à laquelle sera branché l'équipement fournit une connexion à la terre. Si ce n'est pas le cas, le TECHNICIEN DE MAINTENANCE doit arranger l'installation d'un CONDUCTEUR DE MISE A LA TERRE, allant de la borne de mise à la terre jusqu'au conducteur de terre de l'immeuble. Cet équipement doit être installé dans une zone disposant de liaisons équipotentielles (comme un centre de télécommunications ou une salle informatique dédiée).

22. Codes d'installation



Cet appareil doit être installé conformément à la version la plus récente des codes électrique nationaux. En Amérique du Nord, l'équipement doit être installé en respectant les exigences de l'US National Electrical Code et du Code canadien de l'électricité.

23. Interconnexion des unités



Les câbles de connexion aux interfaces RS232 et Ethernet de l'appareil doivent être certifié UL de type DP-1 ou DP-2. (Note : en cas d'installation sur un circuit dont la puissance n'est pas limitée)

Protection contre les surintensités : le câblage de l'immeuble doit intégrer un dispositif certifié de protection contre les surintensités, calibré à 20 A et aisément accessible.

24. Exposition à des rayonnements dangereux



Attention : l'utilisation de commandes, l'ajustement ou la conduite de procédures autres que celles indiquées ici pourraient conduire à une exposition dangereuse à des rayonnements.

Pour les produits disposant de ports optiques



PRODUIT LASER DE CLASSE 1 et référence aux plus récentes normes relatives aux lasers : IEC 60 825-1:1993 + A1:1997 + A2:2001 et EN 60825-1:1994+A1:1996+A2:2001

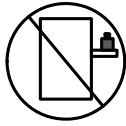
Pour les produits disposant de ports optiques

25. Armoire de protection appropriée



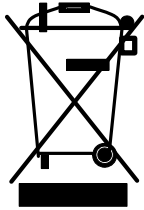
Une enceinte appropriée aux niveaux électrique, mécanique et incendie doit être fournie par le constructeur du produit fini ou par l'utilisateur.

26. Ne pas utiliser comme étagère ou plan de travail



Attention : un équipement coulissant ou monté sur rail ne doit pas servir d'étagère ni de plan de travail. Les rails ne sont pas destinés à faire coulisser l'unité hors du rack. Ils sont destinés à une installation permanente à l'emplacement final, pas pour l'entretien ni la maintenance.

27. Directive DEEE



Selon la Directive 2002/96/CE (DEEE), tous les déchets d'équipements électriques et électroniques (EEE) doivent être collectés séparément et ne pas être mis au rebut avec les déchets ménagers habituels.

Ce produit et toutes ses pièces doivent être mis au rebut d'une manière responsable, respectant l'environnement.

28. Restrictions concernant l'alimentation pour la Norvège



Cet appareil est prévu pour être relié à un système d'alimentation TN et un système d'alimentation informatique de Norvège uniquement.

Appendix H: Installation – Sicherheitshinweise(German)

1. Installationsanleitungen

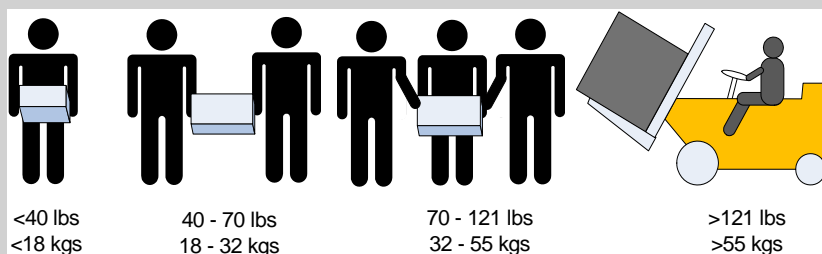


Lesen Sie alle Installationsanleitungen, bevor Sie das Gerät an die Stromversorgung anschließen.

2. Verletzungsgefahr wegen des Gewichts



Um das Produkt sicher anzuheben, genügend Personen einsetzen.



3. Schweres Gerät



Dieses Gerät ist sehr schwer und muss mit einem mechanischen Hebegerät verschoben werden, um Verletzungen zu vermeiden.

4. Installation an Bereich mit eingeschränktem Zugang



Diese Gerät ist für die Installation in einem Bereich mit beschränktem Zugang vorgesehen.

5. Stromschlagrisiko



Stromschlagrisiko!

Bei abgenommenem Ventilatormodul sind die Stromkontakte in der Modulvertiefung zugänglich.

Es dürfen KEINE Werkzeuge oder Körperteile in die Vertiefung des Ventilatormoduls gelangen.

6. Übertemperatur



Dieses Gerät sollte nicht in einem Bereich mit einer Umgebungstemperatur über der maximal empfohlenen Temperatur von 45°C (113°F) betrieben werden. Es ist ein Luftstrom von 200 LFM bei maximaler Umgebungstemperatur erforderlich. Außerdem sollten mindestens 8 cm (3 in.) Freiraum um die Belüftungsöffnungen sein, um einen einwandfreien Luftstrom zu gewährleisten.

7. Stapeln des Chassis



Das Chassis sollte nicht auf andere Geräte gestapelt werden. Wenn das Chassis herunterfällt, kann es zu Verletzungen und Beschädigungen an Geräten führen.

8. Zweipolig/Neutrale Sicherung



Achtung:

Zweipolige bzw. Neutraleiter-Sicherung im Netzteil. Netzstecker ziehen, um sicherzustellen, daß keine Spannung am Gerät anliegt. Entfernen Sie alle Netzkabel vor dem Öffnen der Abdeckung dieses Produkts oder dem Berühren der Innenteile.

9. Mehrere Stromeingänge



Risiko eines Stromschlags und Stomgefahr.

Alle Stromversorgungseinheiten sind unabhängig.

Trennen Sie alle Stromversorgungen, um einen abgeschalteten Zustand im Inneren der Switch-Plattform sicherzustellen.

10. Bei Gewitter - Elektrische Gefahr



Arbeiten Sie während eines Gewitters und Blitzschlag nicht am Gerät, schließen Sie keine Kabel an oder ab.

11. Anschließen/Trennen von InfiniBand-Kupferkabel



InfiniBand-Kupferkabel sind schwer und nicht flexible. Deshalb müssen sie vorsichtig an die Anschlüsse angebracht bzw. davon getrennt werden. Lesen Sie die speziellen Warnungen und Anleitungen des Kabelherstellers.

12. Rack-Montage und Wartung



Wenn dieses Produkt in einem Rack montiert oder gewartet wird, sind besondere Vorsichtsmaßnahmen zu ergreifen, um die Stabilität des Systems zu gewährleisten. Im Allgemeinen sollten Sie das Gestell von unten nach oben mit Geräten füllen.

13. Geräteinstallation



Diese Gerät sollte nur von geschultem und qualifiziertem Personal installiert, ausgetauscht oder gewartet werden.

14. Geräteentsorgung



Die Entsorgung dieses Geräts sollte unter Beachtung aller nationalen Gesetze Bestimmungen erfolgen.

15. Regionale und nationale elektrische Bestimmungen



Dieses Gerät sollte unter Beachtung der regionalen und nationalen elektrischen Bestimmungen installiert werden.

16. Installationscodes



Dieses Gerät muss entsprechend der aktuellsten Version des National Electrical Code installiert werden. In Nordamerika muss das Gerät gemäß den geltenden Anforderungen des US National Electrical Code und des Canadian Electrical Code installiert werden.

17. Akkuaustausch



Warnung: Nur durch von UL anerkannten Akkus ersetzen, die für maximalen anormalen Ladestrom von nicht weniger als 4mA zertifiziert sind.

Es besteht Explosionsgefahr, wenn der Akku durch einen Akku eines falschen Typs ersetzt wird.

Akkus gemäß den Anweisungen entsorgen.

18. UL- und CSA-zertifiziertes Netzkabel



Für Nordamerika Stromanschluss, wählen Sie ein Netzkabel, das UL-und CSA Certified

3 - Leiter, [18 AWG], mit einem angespritztem Stecker bewertet bei 125 V, [15], mit einer Mindestlänge von 1,5 m [Six Feet] aber nicht mehr als 4,5 m.

Für die europäischen Zusammenhang, wählen Sie ein Netzkabel, das international harmonisiert und der Aufschrift "<HAR>",

3 - Leiter, mindestens 0,75 mm² Draht, bewertet mit 300 V, mit einem PVC-Mantel isoliert. Das Kabel muss eine angespritztem Stecker bewertet bei 250 V, 10 A. "

19. Hoher Ableitstrom



WARNUNG: Hohe Ableitstrom; Earth Verbindung, bevor Sie die Verbindung von wesentlicher Bedeutung werden.

20. Informationen zum Erdungsanschluss



Bevor Sie dieses Gerät an das Stromnetz, die Schutz Erde Terminal Schrauben dieses Gerät muss an den Schutzleiter in der Gebäudeinstallation.

21. Installationscodes



Dieses Gerät muss installiert sein, entsprechend auf die neueste Version des Landes National Electrical Code. Für Nordamerika, müssen in Übereinstimmung mit den geltenden Vorschriften in der US-amerikanischen National Electrical Code und dem Canadian Electrical Code.

22. Verbindung der Geräte untereinander



Kabel für den Anschluss an das Gerät RS232- und Ethernet-Schnittstellen müssen UL zertifiziert Typ DP-1 oder DP-2. (Hinweis-, wenn nicht mit Wohnsitz in LPS-Schaltung)

Überstromschutz: Eine leicht zugängliche Auflistung Abzwegleitung Überstrom-Schutzeinrichtung 20 A bewertet werden müssen in dem Gebäude Verkabelung.

23. Gefährliche Strahlung



Achtung – Nutzung von Steuerungen oder Einstellungen oder Ausführung von Prozeduren, die hier nicht spezifiziert sind, kann zu gefährlichem Strahlenkontakt führen..



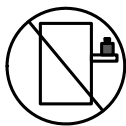
Klasse 1 Laserprodukt und Referenzen zu den aktuellsten Lasterstandards :
ICE 60 825-1:1993 + A1:1997 + A2:2001 und EN 60825-1:1994+A1:1996+ A2:2001

24. Geeignetes Gehäuse



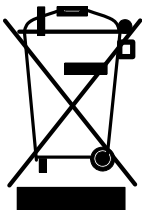
Geeigneter elektrischer, mechanischer und Feuerschutz sind vom Hersteller des Endprodukts oder dem Endbenutzer bereitzustellen.

25. Switch nicht als Regal oder Arbeitsplatz nutzen



Achtung: Auf Schieber/Schienen montiertes Gerät ist nicht als Regal oder Arbeitsbereich zu nutzen. Die Schienen sind nicht dafür bestimmt, die Einheit aus dem Gestell weg zu ziehen. Sie sind nur für die permanente Installation an einem endgültigen Standort gedacht, nicht für Instandhaltung und Wartung.

26. WEEE-Direktive



Gemäß WEEE Directive 2002/96/EC müssen alle elektrischen und elektronischen Abfallgeräte (EEE) separat gesammelt und nicht mit normalem Haushaltsmüll entsorgt werden.

Dieses Produkt und alle seine Teile in verantwortungsvoller und umweltfreundlicher Art und Weise entsorgen.

Appendix I: Advertencias de seguridad de instalación(Spanish)

1. Instrucciones de instalación

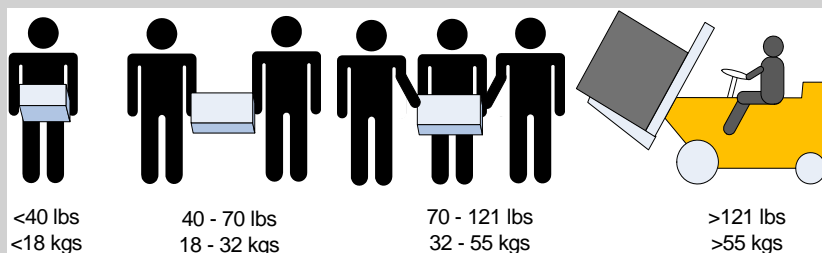


Antes de conectar el equipo a la fuente de alimentación, leer todas las instrucciones de instalación.

2. Lesión corporal a causa de peso



.Recorra a suficientes personas para levantar este producto sin



3. Equipos pesados



Dado que el equipo es muy pesado, se debe mover únicamente mediante un elevador mecánico, para evitar lesiones.

4. Instalación en lugares con acceso restringido



Esta unidad ha sido ideada para instalar en lugares de acceso restringido.

5. Riesgo de descarga eléctrica



¡Riesgo de descarga eléctrica!

Con el módulo del ventilador quitado, se obtiene acceso a las clavijas de alimentación desde dentro de la cavidad del módulo.

NO introducir herramientas ni partes del cuerpo en la cavidad del módulo del ventilador.

6. Sobretemperatura



No se debe utilizar el equipo en un área con una temperatura ambiente superior a la máxima recomendada: 45°C. Además, para garantizar una circulación de aire adecuada, se debe dejar como mínimo un espacio de 8 cm (3 pulgadas) alrededor de las aberturas de ventilación.

7. Apilamiento del chasis



Los chasis no se deben apilar sobre otros equipos. La caída del chasis podría causar lesiones corporales, así como daños al equipo.

8. Conexión redundante de fuente de alimentación: peligro de descarga



Este producto incluye una fuente de alimentación redundante o, en su lugar, una vacía. Si se dispone de una fuente de alimentación vacía, no utilizar el producto si su tapa está quitada o no está bien cerrada.

9. Fusible neutro o de polo doble



Dos fusibles, uno en el polo y otro en el neutro. Quitar los cables de corriente antes de abrir la tapa de este producto o tocar cualquier componente interno.

10. Tomas de alimentación múltiples



Riesgo de descarga eléctrica y peligro de corriente.
Todas las fuentes de alimentación son independientes.
Desconecte todas las fuentes de alimentación, para asegurar que no haya corriente alguna dentro de la plataforma de conmutación.

11. Al haber rayos: peligro de descarga



No utilizar el equipo ni conectar o desconectar cables durante períodos de actividad de rayos.

12. Cable de conexión y desconexión InfiniBand de cobre



Dado que los cables de cobre InfiniBand son pesados y no son flexibles, su conexión a los conectores y su desconexión se deben efectuar con mucho cuidado. Para ver advertencias o instrucciones especiales, consultar al fabricante del cable.

13. Montaje y mantenimiento del bastidor



Al instalar o realizar el mantenimiento de este aparato en un bastidor, es preciso adoptar precauciones especiales para garantizar que el sistema se mantenga estable. En general, en un bastidor, los equipos se deben instalar comenzando desde abajo hacia arriba.

14. Instalación del equipo



La instalación, el reemplazo y el mantenimiento de este equipo estarán a cargo únicamente de personal capacitado y competente.

15. Eliminación del equipo



La eliminación definitiva de este equipo se debe efectuar conforme a todas las leyes y reglamentaciones nacionales.

16. Códigos eléctricos locales y nacionales



Este equipo se debe instalar conforme a los códigos eléctricos locales y nacionales.

17. Códigos de instalación



Este dispositivo se debe instalar conforme a la versión más reciente de los códigos eléctricos nacionales del país en cuestión. En América del Norte, el equipo se debe instalar de acuerdo con las disposiciones vigentes del Código Eléctrico Nacional de los EE.UU. y del Código Eléctrico de Canadá.

18. Cambio de batería



Il y a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur.

Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

19. Cable de alimentación homologado por UL y con certificación CSA



En conexiones de América del Norte, seleccionar un cable de alimentación homologado por UL y con certificación CSA de tres conductores, [16 AWG], terminado en un enchufe moldeado con capuchón de 125 voltios nominal, [13 A], con una longitud mínima de 1,5 metros, pero no más de 4,5 metros.

En conexiones europeas, seleccionar un cable de alimentación armonizado internacionalmente y marcado "<HAR>", de tres conductores, hilo de 1,0 mm² como mínimo, 300 voltios nominal, con cobertura protectora aislante de PVC. El cable debe tener un enchufe moldeado con capuchón de 250 voltios nominal, 10 A.

20. Alta corriente de fuga



ADVERTENCIA: Alta corriente de fuga. Es esencial efectuar la conexión a tierra antes de conectar la alimentación.

21. Agregar información de conexión a tierra (GND)



Antes de conectar el dispositivo a la línea de alimentación, los tornillos del terminal de la puesta a tierra de protección del dispositivo se deben conectar a la puesta a tierra de protección de la instalación del edificio.

(Información de conexión a tierra):

La instalación del edificio deberá proveer un medio para la conexión con la puesta a tierra de protección y un técnico de servicio deberá conectar permanentemente el equipo a dicho medio de conexión.

Un TÉCNICO DE SERVICIO comprobará si la toma eléctrica de la que se suministrará corriente al equipo provee una conexión con la puesta a tierra de protección del edificio. De no ser así, el TÉCNICO DE SERVICIO se encargará de instalar un CONDUCTOR DE CONEXIÓN A TIERRA DE PROTECCIÓN, del terminal de puesta a tierra de protección separado al conductor de tierra de protección del edificio. El equipo se instalará en un área donde haya conexión equipotencial, como por ejemplo, un centro de telecomunicaciones o una sala de computadoras dedicada.

22. Códigos de instalación



Este dispositivo se debe instalar conforme a la versión más reciente de los códigos eléctricos nacionales del país en cuestión. En América del Norte, el equipo se debe instalar de acuerdo con las disposiciones vigentes del Código Eléctrico Nacional de los EE.UU. y del Código Eléctrico de Canadá.

23. Interconexión de unidades



Los cables para la conexión con las interfaces RS232 y Ethernet de la unidad deben estar homologados por UL tipo DP-1 o DP-2. (Nota: cuando residen en circuito no de tipo LPS)

Protección contra sobrecargas: Al cableado del edificio se debe incorporar un dispositivo de protección contra sobrecargas de circuito derivado, de fácil acceso, con una corriente nominal de 20 A.

24. Exposición a radiación peligrosa



Precaución: el uso de controles o ajustes o la realización de procedimientos distintos de los que aquí se especifican podrían causar exposición a niveles de radiación peligrosos.



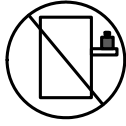
PRODUCTO LÁSER DE CLASE 1 y referencia a las normas de láser más recientes: IEC 60825-1:2007/03 y EN 60825-1:2007

25. Recinto adecuado



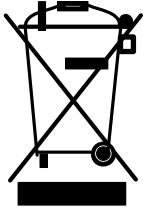
El fabricante del producto final o el usuario final deberán suministrar un confinamiento adecuado para componentes eléctricos y mecánicos y contra incendio.

26. No utilizar el conmutador como estante ni como espacio de trabajo



Cuidado: Equipos montados en deslizadores o rieles no se deben utilizar como estantes ni como espacio de trabajo. La finalidad de los rieles no es deslizar la unidad hacia afuera del bastidor. Sirven solo para la instalación permanente en el lugar de destino final, no para fines de servicio o mantenimiento

27. Directiva WEEE



Conforme a la Directiva 2002/96/CE sobre RAEE, todos los residuos de equipos eléctricos y electrónicos (EEE) se deben recolectar por separado y no se deben eliminar junto con residuos domésticos.

Al deshacerse de este producto y de todas sus partes, hágalo de una manera responsable y respetuosa con el medio ambiente.

Appendix J: Предупреждения по технике безопасности при установке(Russian)

1. Инструкция по установке

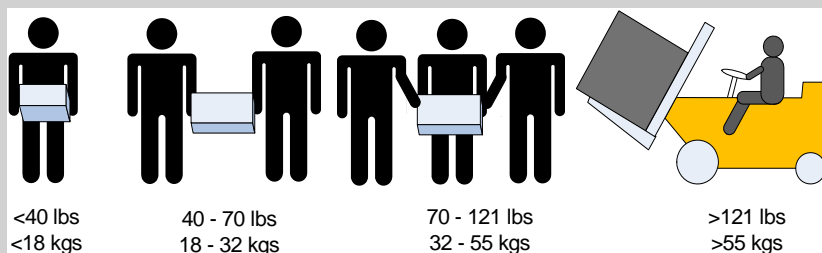


Перед подключением оборудования к источнику питания следует ознакомиться с инструкцией по установке.

2. Травмы при переносе тяжелых предметов



Для поднятия этого изделия следует задействовать достаточное количество людей.



3. Тяжелое оборудование



Это очень тяжелое оборудование, поэтому его следует перемещать с помощью механического подъемника во избежание травм.

4. Опасность поражения электрическим током



Это устройство предназначено для установки в помещении с ограниченным доступом.

5. Опасность поражения электрическим током



Опасность поражения электрическим током!

Когда снят вентиляторный модуль, существует возможность повреждения контактов питания в его углублении.

НЕ вставлять инструменты или части тела в углубление вентиляторного модуля.

6. Перегрев



Не эксплуатировать это оборудование в помещении с температурой окружающей среды, превышающей максимально рекомендуемое значение: 45 °C (113 °F). Более того, для надлежащей вентиляции следует обеспечить зазор вокруг вентиляционных отверстий не менее 8 см (3 дюйма).

7. Установка шасси поверх другого оборудования



Не устанавливать шасси поверх другого оборудования. Падение шасси может привести к травмам и повреждению оборудования.

8. Опасность поражения электрическим током резервного источника питания



В этом изделии установлен резервный источник питания или модуль-заглушка. Если установлен модуль-заглушка, не эксплуатировать изделие со снятой или ненадежно закрепленной крышкой модуля-заглушки.

9. Двухполюсный предохранитель на фазном и нейтральном проводах



В этой системе установлен двухполюсный предохранитель на фазном и нейтральном проводах. Открывать кожух этого изделия или касаться внутренних деталей можно только после отсоединения всех шнуров питания.

10. Несколько источников питания



Опасность поражения электрическим током и опасные энергетические воздействия.

Блоки питания независимы друг от друга.

Чтобы обесточить все компоненты внутри платформы коммутации, следует отсоединить все блоки питания.

11. Опасность поражения электрическим током во время грозы



Во время грозы запрещается использовать оборудование и подключать или отключать кабели.

12. Подсоединение и отсоединение медных кабелей InfiniBand



Медные кабели InfiniBand тяжелые и негибкие, поэтому следует осторожно их подсоединять и отсоединять. За особыми предупреждениями и указаниями следует обратиться к производителю кабеля.

13. Установка или обслуживание в стойке



При установке или обслуживании этого изделия в стойке следует обеспечить устойчивость системы. Как правило, стойка заполняется оборудованием снизу вверх.

14. Установка оборудования



Устанавливать, заменять и/или обслуживать это оборудование должен только подготовленный и квалифицированный персонал.

15. Утилизация оборудования



Это оборудование утилизируется в соответствии с национальными законами и постановлениями.

16. Местные и национальные правила установки электрооборудования



Это оборудование устанавливается в соответствии с местными и национальными правилами установки электрооборудования.

17. Правила установки электрооборудования



Это устройство устанавливается в соответствии с последним изданием национальных правил установки электрооборудования. В Северной Америке оборудование устанавливается в соответствии с действующими требованиями Национальных правил эксплуатации и обслуживания электрических установок США и Канады.

18. Замена аккумулятора



Осторожно! Заменять только аккумулятором, одобренным организацией UL и рассчитанным на максимальный аномальный зарядный ток не менее 4 мА. Существует риск взрыва при замене аккумулятора другим аккумулятором неправильного типа. Отработавшие аккумуляторы утилизируются в соответствии с указаниями.

19. Шнур питания, включенный в номенклатуру UL и сертифицированный Канадской ассоциацией стандартизации (CSA)



Подключение к электропитанию в Северной Америке выполняется с помощью шнура питания, включенного в номенклатуру UL и сертифицированного Канадской ассоциацией стандартизации (CSA), 3-жильного, [16 AWG], длиной от 1,5 м [6 футов] до 4,5 м, с литой вилкой, рассчитанной на 125 В [13 А]. Подключение к электропитанию в Европе выполняется с помощью гармонизированного шнура питания с маркировкой <HAR>, 3-жильного, с сечением жилы не менее 1,0 мм², рассчитанного на номинальное напряжение 300 В, с ПВХ оболочкой. Шнур должен иметь литую вилку, рассчитанную на 250 В, 10 А.

20. Высокий ток утечки



Осторожно! Высокий ток утечки. Заземлить перед подключением к электропитанию.

21. Добавить информацию о подключении к заземлению



Перед подключением этого устройства к сети электропитания следует подсоединить винты заземляющего зажима устройства к защитному заземлению здания. (Информация о подключении к заземлению):

В здании должна быть предусмотрена возможность подключения к защитному заземлению, к которому техник должен стационарно подключить оборудование. ТЕХНИК должен убедиться, что розетка, от которой будет питаться оборудование, подключена к защитному заземлению здания. Если розетка не подключена к защитному заземлению, ТЕХНИК должен организовать прокладку ПРОВОДА ЗАЩИТНОГО ЗАЗЕМЛЕНИЯ от отдельного зажима защитного заземления до провода защитного заземления в здании. Оборудование устанавливается в помещении с уравниванием потенциалов (например, в телекоммуникационном центре или специальном помещении для компьютеров).

22. Правила установки электрооборудования



Это устройство устанавливается в соответствии с последним изданием национальных правил установки электрооборудования. В Северной Америке оборудование устанавливается в соответствии с действующими требованиями Национальных правил эксплуатации и обслуживания электрических установок США и Канады.

23. Подсоединение устройств



Для подключения к разъемам RS232 и Ethernet используются кабели типа DP-1 или DP-2, сертифицированные организацией UL. (Примечание. При подключении к сети без ограниченного источника электропитания)

Максимальная токовая защита. В проводку здания в легкодоступном месте следует включить устройство защиты от перегрузки по току номиналом 20 А.

24. Опасное радиационное воздействие



Внимание! Выполнение не изложенных здесь регулировок, настроек и процедур может вызвать опасное радиационное воздействие.

ЛАЗЕРНОЕ ИЗДЕЛИЕ КЛАССА 1 и ссылка на последние стандарты по безопасности лазерных изделий IEC 60 825-1:1993 + A1:1997 + A2:2001 и EN 60825-1:1994 + A1:1996 + A2:2001.

25. Соответствующий кожух



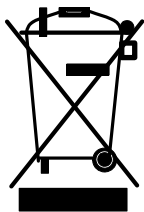
Производитель конечного изделия и/или конечный пользователь должны обеспечить соответствующий электрический, механический и противопожарный кожух.

26. Не использовать коммутатор как полку или рабочую



Внимание! Оборудование, установленное на направляющих, не должно использоваться как полка или рабочая поверхность. Направляющие не предназначены для удерживания устройства, выдвинутого из стойки. Они предназначены для стационарной установки только в конечном положении и не используются для обслуживания устройства.

27. Директива WEEE



В соответствии с Директивой 2002/96/EC (WEEE) отходы электрического и электронного оборудования должны собираться и утилизироваться отдельно от обычных бытовых отходов.

Следует утилизировать это изделие и все его части ответственным и экологически безопасным способом.

Appendix K: Avertismente privind siguranța la instalare (Romanian)

1. Instrucțiuni de instalare

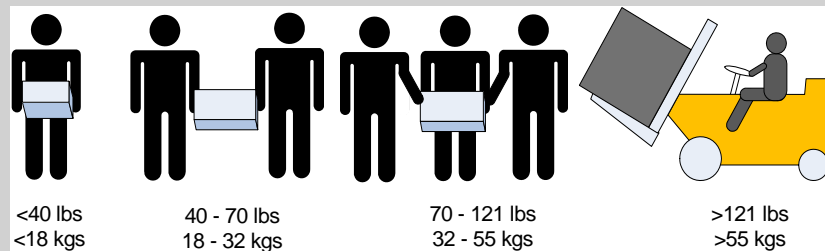


Citiți toate instrucțiunile de instalare înainte de a conecta

2. Accidentare cauzată de greutate



Apelați la un număr suficient de persoane pentru a ridica în siguranță acest produs.



3. Echipament greu



Acest echipament este foarte greu și trebuie să fie mutat folosind un dispozitiv mecanic de ridicare pentru a evita producerea de leziuni.

4. Instalarea într-un loc cu acces limitat



Această unitate este destinată instalării într-un loc cu acces limitat.

5. Risc de șoc electric



Risc de șoc electric!

Odată ce modulul ventilator este îndepărtat, pinii electrici sunt accesibili în cavitatea modulului.

NU introduceți instrumente sau părți din corp în cavitatea modulului ventilator.

6. Temperatură în exces



Acest echipament nu trebuie să fie acționat într-o zonă unde temperatura ambiantă depășește valoarea maximă recomandată: 45°C (113°F). În plus, pentru a asigura un flux de aer adecvat, lăsați un spațiu liber de cel puțin 8 cm (3 inch) în jurul fanțelor de ventilare.

7. Suprapunerea cadrului



Cadrul nu trebuie să fie suprapus peste niciun alt echipament. În cazul în care cadrul cade, poate cauza leziuni corporale și deteriorări ale echipamentului.

8. Conexiunea la o sursă de alimentare electrică suplimentară - pericol electric



Acest produs include o sursă de alimentare suplimentară sau un spațiu gol în locul acesteia. În cazul în care spațiul pentru sursa de alimentare este gol, nu operați produsul când capacul orb este îndepărtat sau nu este fixat în mod sigur.

9. Siguranță fuzibilă bipolară/neutră



Acest sistem este prevăzut cu siguranță fuzibilă bipolară/neutră. Îndepărtați toate cordoanele de alimentare înainte de a deschide capacul acestui produs sau înainte de a atinge orice componente interne.

10. Multiple mufe electrice



Risc de șoc electric și pericol electric.

Toate aparatele cu alimentare de la rețea sunt independente.

Deconectați toate sursele de alimentare cu energie pentru a asigura decuplarea în interiorul platformei de comutare.

11. În timpul descărcărilor electrice - pericol electric



În timpul perioadelor cu descărcări electrice luminoase, nu lucrați cu echipamentul sau nu conectați sau deconectați cablurile.

12. Conectarea/deconectarea cablului din cupru InfiniBand



Cablurile InfiniBand din cupru sunt grele și inflexibile, de aceea trebuie să fie atașate sau detașate de conectori cu grijă. Consultați producătorul de cabluri pentru avertismente/instrucțiuni speciale.

13. Montarea sau depanarea într-un rack



Când acest produs este montat sau depanat într-un rack, trebuie să fie luate măsuri de precauție speciale pentru a se asigura că sistemul rămâne stabil. În general, trebuie să umpleți rack-ul cu echipamente începând de jos în sus.

14. Instalarea echipamentului



Acest echipament trebuie să fie instalat, înlocuit și/sau depanat numai de către personal instruit și calificat.

15. Eliminarea echipamentului



Eliminarea acestui echipament trebuie să se realizeze în conformitate cu toate legile și regulamentele naționale.

16. Codurile electrice locale și naționale



Acest echipament trebuie să fie instalat conform codurilor electrice locale și naționale.

17. Codurile de instalare



Acest dispozitiv trebuie să fie instalat în conformitate cu ultima versiune a codurilor electrice naționale ale țării în cauză. Pentru America de Nord, echipamentul trebuie să fie instalat conform cerințelor aplicabile din Codul electric național al SUA și Codul electric canadian.

18. Înlocuirea bateriei



Avertisment: Înlocuiți numai cu o baterie recunoscută UL, certificată pentru curent de încărcare anormal maxim de minimum 4 mA

Există risc de explozie în cazul în care bateria este înlocuită cu o baterie necorespunzătoare.

Eliminați bateriile folosite în conformitate cu instrucțiunile.

19. Cordon de alimentare electrică înregistrat UL și certificat CSA



Pentru conectarea la o sursă de alimentare pentru America de Nord, selectați un cordon de alimentare care este înregistrat UL și certificat CSA, cu 3 conductoare, [16 AWG], terminat cu o fișă turnată, cu putere nominală egală cu 125 V, [13 A], cu o lungime de minimum 1,5 m [șase picioare], dar nu mai lung de 4,5 m.

Pentru conectarea la o sursă de alimentare în Europa, selectați un cordon de alimentare care este armonizat la nivel internațional și marcat „<HAR>”, cu 3 conductoare, cu minimum 2 fire de 1,0 mm, cu putere nominală egală cu 300 V și cu o manta izolantă din PVC. Cordonul de alimentare trebuie să fie prevăzut cu o fișă turnată cu putere nominală egală cu 250 V, 10 A.

20. Curent de scurgere de înaltă frecvență



Avertisment: Curent de scurgere de înaltă frecvență; Împământarea este esențială înainte de a conecta sursa de alimentare.

21. Adăugarea de informații privind legarea la pământ



Înainte de a conecta acest dispozitiv la o linie electrică de energie, șuruburile bornelor de protecție de legare la pământ ale acestui dispozitiv trebuie să fie conectate la priza de pământ de protecție din instalația clădirii. (Informații privind legarea la pământ):

Instalația clădirii va asigura un mijloc de conectare la priza de pământ, iar echipamentul va fi în mod permanent conectat la priza de pământ de un agent de întreținere.

UN AGENT DE ÎNTREȚINERE va verifica dacă priza - borna de ieșire prin intermediul căreia va fi alimentat echipamentul cu energie electrică asigură o conexiune la priza de pământ a clădirii. În caz contrar, AGENTUL DE ÎNTREȚINERE va dispune instalarea unui CONDUCTOR DE PROTECȚIE DE LEGARE LA PĂMÂNT de la borna separată de protecție de legare la pământ la cablul de protecție de legare la pământ al clădirii. Echipamentul va fi instalat într-o zonă unde există legături echipotențiale (precum un centru de telecomunicații sau o cameră a computerelor dedicată).

22. Codurile de instalare



Acest dispozitiv trebuie să fie instalat în conformitate cu ultima versiune a codurilor electrice naționale ale țării în cauză. Pentru America de Nord, echipamentul trebuie să fie instalat conform cerințelor aplicabile din Codul electric național al SUA și Codul electric canadian.

23. Interconectarea unităților



Cablurile pentru conectarea la unitatea RS232 și la interfețele Ethernet trebuie să fie de tipul DP-1 sau DP-2 certificate UL. (Notă- când se regăsesc într-un circuit non-LPS)

Protecție la supracurent: Un dispozitiv de protecție la supracurent, înregistrat în circuitul de ramificare, ușor accesibil și cu o putere nominală egală cu 20 A trebuie să fie integrat în cablajul clădirii.

24. Expunerea la radiații periculoase



Atenție – Utilizarea elementelor de comandă sau ajustarea sau executarea altor proceduri decât a celor indicate în acest document poate avea ca rezultat expunerea la radiații periculoase.

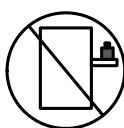
PRODUS LASER CLASA 1 și referire la cele mai recente standarde pentru laser IEC 60 825-1:1993 + A1:1997 + A2:2001 și EN 60825-1:1994+A1:1996+ A2:2001

25. Carter adecvat



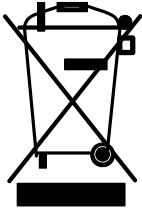
Un carter electric, mecanic și ignifug adecvat va fi furnizat de fabricantul produsului final și/sau utilizatorul final.

26. Nu utilizați comutatorul ca raft sau spațiu de lucru



Atenție: Echipamentul montat pe o linie de alunecare/șină nu va fi utilizat ca raft sau spațiu de lucru. Scopul șinelor nu este de a glisa unitatea de pe rack. Acestea sunt destinate instalării permanente numai la punctul final de oprire și nu vor fi folosite pentru depanare și întreținere

27. Directiva DEEE



În conformitate cu Directiva DEEE 2002/96/CE, toate deșeurile de echipamente electrice și electronice (EEE) trebuie colectate separat și nu trebuie eliminate împreună cu deșeurile menajere obișnuite.

Eliminați acest produs și toate componentele sale în mod responsabil și ecologic.

Appendix L: 安裝安全性警告 (Chinese)

1. 安裝指示

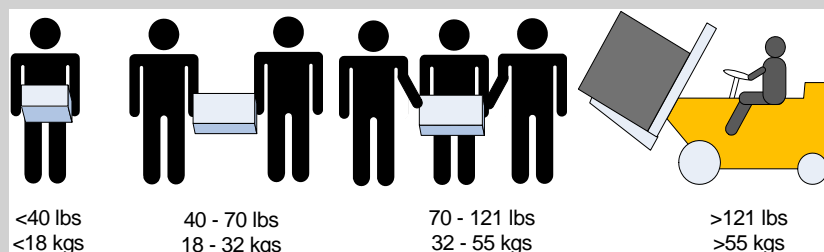


本設備附有備援電源供應器或在適當位置配有空白蓋板。

2. 因重量導致的人身受傷



為了安全起見，請安排足夠的人員以合力抬起本產品。



3. 重設備



本設備極重，應使用機械式起重機來搬移，以避免人員受傷。

4. 安裝於進出管制區域



本設備設計安裝於進出管制區域。

5. 有觸電的危險



有觸電的危險！

拆除風扇模組後，即可接觸到模組空腔內的電源針腳。
請勿將工具或機身零件插入到風扇模組空腔內。

6. 溫度過高



本設備不應在超過所建議的最高環境溫度的區域中運作：45°C (113°F)。此外，為了保證氣流的流通正常，請在通風口旁保留至少 8 公分 (3 英吋) 的間距。

7. 堆疊機箱



機箱不應堆疊在任何其他設備上。如果機箱掉落，可能造成人員受傷與設備損壞。

8. 複式電源連接時的電擊危險



本設備附有備援電源供應器或在適當位置配有空白蓋板。如果是電源供應器空白蓋板，在空白蓋板已取下或未牢固固訂的情況下，請勿操作本產品。

9. 雙極 / 中性保險絲



本系統具有雙極 / 中性保險絲。請拔掉所有電源線後，再打開本產品的蓋板或碰觸任何內部零件。

10. 多電源輸入座



電擊與能源危害的危險。
所有 PSU 均各自獨立。
將所有電源供應器斷電，確保交換器平台內部在電源關閉狀態。

11. 閃電時的電擊危險



在閃電期間，不要使用本設備或連接或拔下纜線。

12. InfiniBand 銅纜連接 / 拔下



InfiniBand 銅纜很重且沒有彈性，因此必須小心裝在連接器上或自連接器上拔下。如需相關的特殊警告 / 指示，請洽詢纜線製造商。

13. 機架安裝與維修



此產品已安裝在機架中或在機架中維修時，必須採取特定預防措施以確保系統維持穩定。一般您應該將設備從底部到頂端放滿機架。

14. 設備安裝



本設備僅限由經過訓練與 / 或合格的人員安裝、更換或維修。

15. 設備棄置



棄置本設備應遵照所有國內法規。

16. 當地與國家電氣法規



請遵照當地與國家電氣法規安裝本設備。

17. 安裝法規



請務必遵循最新版的國家電氣法規，安裝本設備。在北美地區，請務必遵循美國國家電工法規和加拿大電工法規中的適用規定，安裝本設備。

18. 更換電池



警告：只能以 UL 認可電池，且取得最大異常充電電流低於 4mA 認證的電池進行更換。

若更換錯誤類型的電池，會有爆炸的危險。

請依據指示棄置廢電池。

19. UL 列名和 CSA 認證電源線



北美地區在接上電源時，請選用獲得 UL 列名和 CSA 認證、三個導體、[16 AWG] 附成型插頭，額定值為 125 V、[13 A]，長度至少 1.5 公尺 [六英尺]，但不超過 4.5 公尺的電源線。

歐洲地區在接上電源時，請選用國際協調式且標示有 <HAR> 字樣、三個導體、標稱截面至少 1.0 平方公厘，額定值為 300 V，採用 PVC 絕緣的電源線。電源線需有成型插頭，額定值為 250 V, 10 A。

20. 高漏電流



警告：高漏電流；必須執行地線連接，然後再連接電源供應器。

21. 新增 GND 連線資訊



須連接至大樓安裝中的保護地線。(GND 連線資訊)：

大樓安裝應提供連接保護地線的方式；設備一律只能由維修人員連接至地線。

維修人員應檢查插座（供電給設備的插座）是否提供連接大樓保護地線的方式。如果沒有，維修人員應安排從獨立保護地線端子，將保護接地導體安裝至大樓的保護地線。設備應安裝於有等電位聯結的區域（例如，電信中心或專用電腦室）。

22. 安裝法規



請務必遵循最新版的國家電氣法規，安裝本設備。在北美地區，請務必遵循美國國家電工法規和加拿大電工法規中的適用規定，安裝本設備。

23. 互連設備



連接至 RS232 設備和乙太網路介面的纜線必須是 UL 認證類型 DP-1 或 DP-2。（請注意位於非 LPS 電路時）

過電流保護：準備好使用的列名分支電路過電流保護裝置最大額定值 20 A 必須整合在配線中。

24. 危險的放射線暴露



小心 – 使用非本手冊指定的控制、調整或執执行程序可能導致暴露在危險的放射線下。

配備光纜連接埠的產品



CLASS 1 雷射產品，並參照最新的雷射標準 IEC 60 825-1:1993 + A1:1997 + A2:2001 與 EN 60825-1:1994+A1:1996+ A2:2001

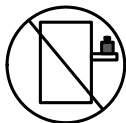
配備光纜連接埠的產品

25. 適當外殼



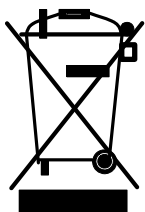
終端產品廠商或終端使用者應提供適合的電氣、機械和防火外殼。

26. 切換開關不可用作機架或工作空間



小心：滑軌 / 導軌安裝設備不可用作機架或工作空間。導軌不適用於將設備滑出機架使用。僅限永久安裝在最後安置區域時使用，不可用於維修和保養。

27. WEEE 指令



根據 WEEE 指令 2002/96/EC，所有廢棄的電氣與電子設備 (EEE)，應分開集中，而且不應與一般家庭廢棄物一起棄置。
請以負責和環保的方式棄置本產品及其所有零件。

28. 挪威國家電源限制



本設備僅限連接至挪威的 TN 電源系統和 IT 電源系統。